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SPIRIT OF THE PHYSICIAN IN WAR AND PEACE*

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Students of enterology today have behind them two decades of organized effort replete with valuable research and knowledge of disease in this line of medical and surgical endeavor; so that when our efforts were sufficiently recognized as a section in the greatest medical organization in the world, our programs and discussions reflected the wisdom of the departure.

Responsibility was no doubt keenly felt this year by officers of all the sections, since we were in the throes of war and not a few of our leaders were in commission to serve the nation. The programs, however, have proved our misgivings unfounded.

What a year this has been! A year of swift, startling, far-reaching changes; a year that brought the great war to a climax and then, with a sweep and a rush, to its close; a year when the cause of freedom and justice and humanity touched the lowest depths of doubt and reached the highest pitch of triumph; the most decisive and dramatic year in modern history. This year is a record of the life and work of this section during these critical twelve months. It shows how we have played our part; and we have a right to be thankful rather than ashamed, as we look over the record. This section could have a service flag that would stand for real service. Our men have been in the fighting line and in the base hospitals. We can point with pride to Harris, Hirschman, Pilcher, Hanes, Graham, Lyon, Lynch and others who have served the nation with devotion. We welcome your return. Those of us who have remained at home have steadily served the same great cause. Our regular work has been maintained, substantially unimpaired, often at the cost of greatly increased labor on the part of a depleted corps of workers. It has been a year of good service and hard work, richly worth while. Of our section it may be said, "Their line has gone out through all the earth." This being a victory year, your chairman thought it appropriate to speak briefly of our profession in war and peace.

HEROISM OF PHYSICIANS IN WAR

Accustomed to service in civil life, the physician, with little or no persuasion, enlisted in the war activities of the nation enthusiastically and with the sacrificial spirit. He frequently sacrificed the large emoluments of civil practice and position for the modest compensation offered by the government, eschewing all thought of rank as a reward, but with an altruism imbued with the idea of doing his bit to make the world a decent place in which to live. He accepted the challenge of war. Thus, the war emphasized in the physician anew the spirit of sympathy and courage.

Having made the initial sacrifice of leaving home and practice, he is preeminently fitted to sympathize with and relieve the suffering of the nation's defenders. We read of the rare courage frequently evinced by the army surgeon, under clandestine attack, while performing his duty, not only in the advanced stations but also in the base hospitals. Forgetful of self, his high purpose to relieve the stricken soldier was executed with a will that neutralized a sense of danger, and led him into the conflict with a heroism well nigh transcendental.

But war and the excitement of battle give immunity from much pain, because one is buoyed by the glamour and the excitement of conflict coupled with the supreme thought of doing something worth while for humanity. This state of mind is the basis of true heroism, and is shared alike by the physician and the soldier; besides, their relations as medical officer and patient melt in the crucible of sympathy, merging into the higher relationship of brotherhood. As our illustrious President has said on occasion:

> **The sympathy that has the slightest touch of condescension in it has no touch of helpfulness about it. If you are aware of stooping to help a man, you cannot help him. You must realize that he stands on the same earth with yourself and has a heart like your own, and that you are helping him, standing on that common level and using that common impulse of humanity.**

The men on this program who have served the colors are able to relate first-hand experiences that are thrilling, for they have been in contact with the ebbing lives of thousands who made the supreme sacrifice; yet the service in ministrations of surgical relief does not attract the crowds, or win their acclamations in the same degree that they are vouchsafed to the commanding general, whose business is to kill. The physician is not a killer, but a saver of life. The altruism of the age is well illustrated in the physician in civil life and in times of peace. The doctrine of service never was better exemplified in the world than by the medical profession today. Why are physicians not as enthusiastically received as would be as many military captains of high renown? Simply because the idea of service is not yet comprehended; simply because the older trade of taking life still holds more glamour than the newer one of saving life.

Physicians are not inferior in heroism, personally or as a class, to the soldiers of the world. They take

* Chairman's address, read before the Section on Gastro-Enterology and Proctology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

more chances in their everyday practice than ever a general officer of an army encounters. The sacrifice of life and health made by the modern physician, in his work for humanity, are not less real, only less dramatic, than the sacrifice in war.

General Pershing said of the physicians in the army:

> Many of them have shared with the line troops the hardships of campaign conditions, and have sustained casualties and privations with fortitude that is beyond praise. No labor has been too exhausting and no danger too great to prevent their full discharge of duty.

REWARDS IN THE SERVICE

The physician will come into his own. His heroism will get its reward, for, in the final test, men will give all they have for health. The most remarkable developments of medicine and surgery are sealed books to the public. They are not translatable into the vernacular. But more remarkable still than all the improvements in surgery, the roentgen ray, and all the germ-fighting discoveries, is this vastly greater and more comforting discovery of the spirit of service in the profession itself.

Not all physicians accepted in the service received the same rank (it was impossible that they should), nor was the distinguished service cross pinned to every breast that deserved one. Some may have received them without having fully earned them. But, be that as it may, every medical officer deserving special distinction will be rewarded by his inner consciousness of having given the best that was in him for his country. The great mobilization of the times graciously included in its plan a neatly executed certificate for those of us who were just as patriotic, but who were unfortunately born too early to meet the age requirements.

PROGRESS THROUGH RESEARCH

To approach the highest efficiency in his ministrations in war and peace, the physician must have the spirit of research.

Knowledge and skill are needed in addition to sympathy and sacrifice. Not content with his attainments in civil practice, he willingly doffed civilian garb and donned the military, to become a part of the organized and disciplined bodies and souls of men whose achievements are objects of the nation's acclamation.

The physician who is wholly bound by tradition is a failure. His profession requires the open-minded, inquiring and adventurous spirit which makes for progress. With these facts in view, thousands of the guild, regardless of position or attainment in civil life, assumed the rôle of pupils and sat at the feet of instructors chosen by the government to direct their energies in military channels. The procedure was not easy either for the government or for the new medical officer, since it involved the law of selection as to the adaptability and the fitness of the applicant for new and responsible duties. The results reflected the wisdom of the authorities who established the training camps for the army surgeon in the making.

The camp was in effect a postgraduate school, wherein the physician was standardized both mentally and physically and in the art of medicine and surgery. He was given a new vision and enthusiasm. He was drilled in surgical technic to the minutest detail. He was taught to command, to know his place, and to have proper respect for authority, as well as to command respect for himself.

Fortunate is he whose personality passed through this ordeal, for it has evolved the new physician, better equipped for the era of peace now dawning. He has emerged with higher attainments and greater experience than he could ever have enjoyed otherwise, which fit him for leadership in medical thought and practice. He will reflect the new standards in peace times that will inure to the advantage of the men who remained at home, as well as of the general public. But we must not be satisfied, on the other hand, to linger with these achievements, but must use them as stepping stones toward a higher goal; for "Art is long, time fleeting, and judgment difficult."

Modern medicine has evolved from an art of observation and empiricism, approaching an applied science based on research, divorcing itself from the cobwebs of tradition and sagacity and substituting therefor analysis and law.

THE SPIRITUAL ELEMENT IN TREATMENT

Proficiency in the physician requires development in the direction of spirituality.

It is not enough to make research into the material factors in recovery. There is a curative force which is moral and spiritual, an intimation of which is seen in the cult of Aesculapius, of whom the gods were jealous because of his acquirements in the use of hidden forces in the healing art, a rediscovered truth in modern days.

Medical science should not become wholly materialistic, since our knowledge is applied to a composite entity which is moral and spiritual as well as physical. Nor is it well to divorce these higher forces from the physical.

The good physician sets in motion the obscure and subtle forces which play on the sensibilities of the patient. He himself radiates health of body and of mind, and cooperates with the experts in the realm of the spirit.

CONCLUSION

The battle with the sword has been fought. Peace once more hovers over the earth. Nations again will direct their energies in the channels of trade, arts and science, and industrial life. The lessons of cooperation learned in war will be projected into civil life, ushering nations and individuals into a new era fraught with new problems and new relationships.

The spirit of the physician in this new age must be alert and able to interpret the stately steppings of progress, in order that his guild may keep abreast of the times with the other lines of activity. We must meet the challenge of peace as well as that of war.

901 Bessemer Building.

Is Your Community Fit?—Do you know how many of the registrants from your community were rejected by the medical examining boards as unfit for military duty on account of tuberculosis? Has a campaign for the relief and prevention of tuberculosis been organized? If not, as a minimum requirement, provision should be made for the proper reporting of all cases of tuberculosis and for health instruction of families and patients, especially in families where there is a patient with advanced disease. Where the patient requires hospital care, is provision made for such care, either through city institutions or by arrangement for bed space in state or district tuberculosis hospitals? It is highly desirable to provide special clinics for the diagnosis and care of cases of tuberculosis before the disease has progressed too far.—*Pub. Health Rep.*, April 25, 1919.

THE TREATMENT OF GAS BACILLUS INFECTION *

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Statistics in regard to gas bacillus infection are relatively rare. It has been possible to gather only a few, yet those few seem to reveal that both its morbidity and mortality lessened very appreciably in the latter years of the great war. I dare only say "seem to reveal," for the reports are both fragmentary and occasionally contradictory. I have selected the following as those most fairly comparable regarding morbidity, mutilation and mortality.

MORBIDITY

Early in 1916, Gross[1] had 2,796 wounded men pass through his ambulance, of whom 101 (3.6 per cent.) developed gas gangrene. In late 1916 the same man treated 1,676 wounded men,[2] thirty-three of whom (1.9 per cent.) developed gas gangrene. In October, 1918, Sieur and Mercier[3] reported that fewer than 0.5 per cent. of the wounded developed gas gangrene in the advanced and intermediate zone.

MORTALITY

Lardennois,[4] in 1916, reported 500 cases of gas bacillus infection with 15 per cent. mortality; and Ivens,[5] in 1917, 460 cases with 9.5 per cent. mortality.

Regarding definite gas gangrene, as distinguished from gas bacillus infection in general, Gross, in 1916, listed 101 cases with 56.5 per cent. mortality, while Ivens, in 1917, reported 107 cases with a mortality of 26.4 per cent. It must be emphasized here, however, that of the cases reported by Gross, those which were treated within twelve hours after the wound was received had a mortality of only 10.9 per cent. This indicates more clearly than any description could the importance of early treatment.

MUTILATIONS AND MORTALITY

In 1916, Gross reported seventy-two amputations (71.3 per cent.) among his 101 cases of gas gangrene, with a mortality of 52.7 per cent. following amputation, while, in 1917, Ivens reported sixty-five amputations (60.7 per cent.) among his 107 cases, with a mortality of 26.2 per cent.

Is it fair to bellieve, then, that even before serotherapy was added to operation, some improvement had been shown in the results obtained by surgical treatment? I think that perhaps it is.

Let us now examine the later reports, made after the serologic work of Leclainche and Vallée,[6] Sacquépée,[7] Weinberg,[8] Bull and Pritchett[9] and others had begun to be applied in war wounds infected with the gas bacillus. Again the reports are comparatively few, and generally of a small series of cases. In 1917, Duval and Vaucher[10] reported fifty instances in which a combination antiperfringens, antiedematiens and antivibrion septique serum prepared by Weinberg and Séguin, was injected prophylactically.

In none of the patients did gas gangrene develop, although all were of the most severely wounded type. Twenty-five died as a result of severe multiple wounds without any signs or symptoms of gas bacillus infection.

In 1918, the same authors[11] reported 281 cases in which severely wounded patients were injected with serum from the Pasteur Institute, a pooled serum of antiperfringens, antiedematiens, and antivibrion septique. Eighteen cases of gas gangrene developed (6.4 per cent.), resulting in ten deaths, so that the mortality rate of 3.5 per cent. thus established, after prophylactic injection, was lower than that which these authors call the usual mortality rate from gas gangrene (16 per cent.) among those severely wounded.

Mairesse and Regnier,[12] in the same year, reported that of 1,016 wounded men examined bacteriologically, 297 showed gas bacillus infection. These were given prophylactic injections of antigangrenous serum, either antiperfringens, antivibrion septique or antiedematiens, as required by the bacteriologic report. In thirty instances, 10 per cent. of the cases, gas gangrene developed.

As regards mutilation, Ivens,[13] in October, 1918, using the triple serum of Weinberg and Séguin reported 222 cases in which use was made of the prophylactic injection, and among which no deaths resulted from gas gangrene, and fourteen amputations for gas gangrene without a fatality. In 154 other instances he gave a prophylactic injection of the Leclainche and Vallée polyvalent serum. There were fifteen cases of amputation for gas gangrene among these. Four patients died, a mortality of 26.6 per cent. In fifty-seven other cases, injections of both Weinberg and Séguin's and Leclainche and Vallée's serum were given. In ten of these, gas bacillus infection was already evident; but in the whole series of fifty-seven there were only two deaths (3.5 per cent. of the whole number, or 20 per cent. of those with evident infection at the time of injection).

Marquis and others,[14] in 1918, reported fifteen cases in which prophylactic injections were employed, and in none of which did gas gangrene develop.

* Read before the Section on Surgery, General and Abdominal, at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Gross, G.: Gaseous Gangrene: Statistical Documents, Bull. de l'Acad. de méd. **76**: 586 (Dec. 26) 1916; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. (June) 1917.

2. Gross, G.: One Hundred and Thirty-Four Cases of Gas Gangrene, Bull. et mém. Soc. de chir. de Paris **42**: 636, 1917; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. (Sept.) 1917.

3. Sieur and Mercier: Gas Gangrene in 1918, Bull. de l'Acad. de méd. **80**: 394 (Oct. 29) 1918; abstr. J. A. M. A. **71**: 2181 (Dec. 28) 1918.

4. Lardennois and Baumel: The Malignant Infections of War Wounds by Anaerobic Microbes, Presse méd. **24**: 506 (Nov. 16) 1916; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. (June) 1917.

5. Ivens: A Clinical Study of Anaerobic Wound Infection: An Analysis of One Hundred and Seven Cases of Gas Gangrene, Med. Press. & Circ. **103**: 12, 1917; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. (June) 1917.

6. Leclainche and Vallée: Specific Serum Treatment of Wounds, Bull. et mém. Soc. de chir. de Par., **43**: 1804, 1916; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. (Jan.) 1917.

7. Sacquépée, E.: Researches on Gaseous Gangrene of War Wounds, Presse méd. **26**: 197, 1918; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. **27**: 315 (Oct.) 1918.

8. Weinberg: Bacteriological and Experimental Researches on Gas Gangrene, Proc. Roy. Soc. Med. **9**: 119, 1916; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. (June) 1917.

9. Bull and Pritchett: Toxin and Antitoxin of and Protective Inoculation Against B. Welchii., J. Exper. Med. **26**: 119 (July) 1917; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. (Nov.) 1917.

10. Duval and Vaucher: Antitoxic Serum for Gas Gangrene, J. A. M. A. **71**: 991 (Sept. 21) 1918.

11. Duval and Vaucher: First Results of Systematic Trials of Antigangrenous Preventive Serotherapy, Bull. et mém. Soc. de chir. de Paris **44**: 1535, 1918; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. **28**: 326 (April) 1919.

12. Mairesse and Regnier: Serotherapy of Gangrene in War Wounds, Presse méd. **26**: 461, 1918; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. **28**: 152 (Feb.) 1919.

13. Ivens, F.: Preventive and Curative Treatment of Gas Gangrene by Mixed Serums, Brit. M. J. **2**: 425 (Oct. 19) 1918; abstr. J. A. M. A. **71**: 1861 (Nov. 30) 1918.

14. Marquis and others: Antigangrenous Serotherapy by the Injection of Antibellonensis and Antivibrion Septique Serums, Bull. et mém. Soc. de chir. de Paris **44**: 1522, 1918; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. **28**: 325 (April) 1919.

Referring to mortality, Duval and Vaucher,[11] in 1918, reported seventy-seven cases of gas gangrene in which the patients were given curative injections. Sixteen died (20.7 per cent.). There were only eight amputations in this series, with no resulting deaths. Marquis and others,[14] in the same year, reported ten cases of gas gangrene in which curative injections were used. Two patients, whose second dose had been delayed, died, a mortality of 20 per cent.

Rouvillois, Guillaume, Louis, Pedeprade and Thibierge,[15] late in 1918, reported twenty-five cases in which curative injections were employed. Six patients, of whom three were already moribund, died, so that the mortality was from 12 to 24 per cent., according as one views it.

Mairesse and Regnier,[12] in the same year, gave curative injections in thirty cases, with a mortality of 16.6 per cent. If we compare the lowest mortality from gas gangrene treated by operation alone (23.4 per cent.) with the average mortality of cases treated by operation plus serotherapy (18.3 per cent. of a total 142 cases given curative injections) we find the latter to be somewhat lower.

CAUSES OF LATER IMPROVEMENT

There are a number of factors which may be responsible for the lower incidence of, and lessened mortality from, gas bacillus infection in the latter part of the war. For example, the ground on and in which the soldiers fought had not received its annual bath of manure for some time. Then, too, the weather was far less severe in 1918 than in the preceding year. Doubtless, also, the camp, field and trench hygiene was better regulated, and facilities for bodily cleanliness and garment renovation had been widened. But of all activities the bettered effectiveness of which increased the wounded man's chance of recovery, rapid transportation holds, perhaps, the premier place. So startling is the difference between the mortality percentage of those men operated on early and those operated on late, that I think we can agree to give rapid transportation of the wounded soldier to the hospital, where he can properly be operated on, an important place under the broad heading of the treatment of gas bacillus infection.

Earlier diagnosis of cases developed in the hospitals came with greater experience in the symptoms of the disease, and brought with it earlier operation and improvement in the operative results. Better fixation of fractures, especially lower extremity fractures, lessened the laceration of tissue and, consequently, the susceptibility to infection. Experience taught that the prolonged application of tourniquets was dangerous, and greater precautions were taken in their sometimes necessary use. Clothing fragments and rough missiles came to be recognized as the infection carriers, and an attempt at their careful removal became routine practice.

It is easy now, in the light of four years experience, to give a moderately adequate reply to the primary question, "What have we here to treat?" But, in the early part of the war, there was a complete, though a natural, ignorance, as a consequence of inexperience, that required time to be supplanted by education. Surgeons began by simple incisions and drainage. They tried out many more or less fantastic methods that the active imaginations of certain praiseworthy enthusiasts had advocated, and arrived with rather creditable rapidity, I think, at the fairly standardized procedure which obtained later on among those who had been well taught. But, as inexperience must still exist today among many who had not the good fortune to participate in the overseas surgery, let us answer our own question and, in the answer, find the modern treatment of gas bacillus infection.

PROBLEMS OF THE PATIENT AND THE INFECTION

We have, then, the problems of the patient, of his environment and of his infection to consider. I will dodge the question of environment by reiterating the importance of such predisposing factors as bad weather, contaminated soil, dirty skin and clothing, poor sanitation, rough missiles, and prolonged exposure before, and slow transportation after, wounding, a few of which are partially under practical human control. As for the patient, his general and local conditions are, of course, interdependent, but for the sake of clearness must be considered separately. He is often in a condition of shock, more or less profound. He may have been partially starved or dehydrated, as well as chilled and severely bled. If his infection has already developed, he is suffering from toxemia and acidemia. He is like a man on a balanced plank, with one end over a bottomless abyss. Remove some of the weight at his end of it, and he walks to safety; add to it, and he slips off, irrecoverably lost. No one but God or experience can give the good judgment required of a surgeon in deciding what and how much operative interference such a patient will stand, and when he will stand it best. The instructed shock team man will tell you that there is a peak in the curve of many a doubtful case at or near which whatever operation is to be made ought to be performed. Nothing takes the place of operation in this disease-injury complex, and it is probable that nothing ever will. For we have to meet not only the toxemia, which may be combated by serum, and the acidemia, which is correctable by alkalization, but the local condition as well, a condition of wide tissue destruction and rapidly spreading infectious process.

Gas bacillus infection can, of course, occur in any wound; but it is almost invariably in severe wounds that it does occur, and particularly in those of the lower extremity, associated with fracture, vascular injury and muscle damage. Such a wound is always far larger beneath than in the skin, and of surprising irregularity. Its depths hide one or more rough missiles and bits of clothing or equipment. Its crevices are filled with blood clots, large and small, and it is walled by muscle, fascia and aponeurosis, shockingly torn, contused and loaded with indriven fragments of comminuted bone and with extravasated blood.

The regional blood supply is locally or massively interfered with by pressure obliteration, or by tearing of the vessels with thrombosis.

Even if it is sterile, such a wound presents many dangers and difficulties. But added to devitalized tissue and blood clot we have infection, usually with a varied flora, particularly the gasogenic, saphrophytic anaerobes. No matter what variety of anaerobic saphrophyte it may be, here we have all the conditions necessary for its rapid and successful growth: warmth, moisture, darkness, abundance of suitable nourish-

15. Rouvillois, Guillaume, Louis, Pedeprade and Thibierge: Treatment of Gaseous Gangrene by Antigangrenous Serums, Bull. et mém. Soc. de chir. de Paris 44:1226, 1918; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. 28:65 (Jan.) 1919.

ment, and a minimum of oxygen admissible from air or blood supply. It is no wonder that the gas infection runs up within a damaged muscle sheath like flame up a flue, and follows the vessel sheaths and blood-filled intermuscular spaces as a river follows its banks.

TREATMENT

Once the general and local condition of the patient is well understood, the principles of the treatment inevitably suggest themselves: shock treatment by heat; detoxication by serum; alkalization by intravenous injection of sodium bicarbonate; removal of all dead tissue, infectious agents and foreign bodies by operation; and assurance against further tissue injury or infection by splints, dressings and Carrel treatment. But while these principles are sufficiently simple, the method and the extent of their application in the individual case are to be weighed always in the judgment of the individual operator; and only general rules for operation can be given.

1. Operate as early as possible.
2. Use nitrous oxid-oxygen anesthesia if possible.
3. Prepare the part with the minimum amount of delay and trauma.
4. Avoid tourniquets.
5. Make incisions longitudinally and half again as long as you think they need be, both in skin and fascia.
6. Leave as much skin as you dare, in your débridement.
7. Go between, rather than through, normal muscles, and do not cut across them unless you have to (better a long separation between two than a short cut across one).
8. But open the wound as thoroughly and freely as you possibly can.
9. Excise all torn, crushed, discolored, noncontractile muscle, until you have left only that which is firm, of normal color, actively contractile, and which bleeds readily.
10. Make a careful and conscientious search for and remove all loose bone and foreign bodies, especially clothing and blood clots.
11. Stop the bleeding; leave the wound wide open, and separate its walls with wet gauze, *laid* in, not *packed* in.
12. Use Carrel tubes, if you know they will be properly cared for. Otherwise omit them.
13. Use plenty of dressings and make careful splint fixation of the part.
14. Do it all as rapidly as you possibly can.

These, in substance, were the instructions given us when we started in, back of the Château Thierry business, last July, and I have found little to add to them from the literature. One may excise a part or the whole of a muscle, or of a group of muscles, or one may have to amputate; but the principle remains the same and the limitation of its application continues always a matter for one's own judgment.

Carrell-Dakin instillation is very generally agreed on as the best postoperative local accessory, when properly used. Wright's hypertonic salt and other solutions have been proved less successful. Nacciarone's[16] multiple deep incisions with iodin irrigation would have to be seen to be judged fairly. I confess that the abstracted reports of it do not impress me as convincing.

SEROTHERAPY

Serotherapy remains to be considered, and in that I have had no personal experience, as we had no antigas serum in any of the seven different advanced hospitals to which our team was assigned. Every one, however, who has been interested in this subject has heard or read of the serum work of Leclainche and Vallée,[6] Weinberg, Sacquépée,[7] and Bull and Pritchett.[9]

In a general way, it may be said that while serotherapy promises much for the future, it has not had much opportunity for performance in the past; or, if it has had, the reports are not yet available. A brief search of the recent literature netted a few reports, some of which I have already quoted; but the reports of the large series of cases in which serotherapy was tried out by the British last spring, and that of the smaller series in which it was tried by the Americans last autumn, I have been unable to secure, and can submit only a general brief of them as given me in a personal communication from Lieut.-Col. William Elser of our Medical Corps.

In the spring of 1918, the British made a considerable test of serotherapy, using a weak, polyvalent serum containing antitoxin against *B. welchii, B. edematiens, Vibrion septique* and *B. tetani*. Prophylactic doses were given to 15,000 soldiers; 15,000 controls were selected, and records were kept of those developing gas gangrene in both groups. Week by week, as the reports came in, it appeared for some time as if a success were to be scored for serotherapy. But, when all the reports were in, both those of the controls and those of the group given prophylactic treatment, a careful review showed that there was not sufficient difference in the incidence rate to warrant any definite declaration as to the protective value of the serum used. Apparently, however, the investigators were favorably impressed; for they laid the failure to secure positive results to the weakness of the serum that was then available.

Early in the spring of 1918, bacteriologists who had been working in France on the gas bacillus infection problem were sent back to the United States to start the manufacture, on a considerable scale, of antigangrenous serums. Several serums were planned, (1) an antiwelch, (2) an antiedematiens, (3) an antivibrion septique, and (4) a polyvalent combination against these three organisms. All were to be secured from animals immune to tetanus.

For several reasons the manufacture progressed slowly; but, in the fall of 1918, about 5,000 doses of serum reached the central laboratories of the American Expeditionary Forces, and preparations were made to test it in the wounded. Because conditions of weather and soil, the type of projectile and the elapsed time after wounding all act as modifying factors in the incidence of gas gangrene in wounds, controls were selected from the same groups of wounded (and on the same days) as those to whom the antiserum was administered. In all, about 2,500 were treated and 2,500 controls selected in October, 1918. It must be remembered that the injections, to be administered early, had to be given as near the front as possible, sometimes under fire, and that intravenous administration was out of the question. They were, therefore, injected into the deep muscles, if possible, or subcutaneously; and, when time and place permitted, into the region of the principal wound. On the whole, the results were encouraging, and it is believed that if the armistice had not interrupted the progress of the test, a very favorable report might finally have been rendered, which would have dictated the employment, as a routine measure, of the antigas

16. Nacciarone, A.: Gas Gangrene and Phlegmons, Riforma med. **33**: 772 (July 21) 1917; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. **25**: 1119 (Sept. 29) 1917.

serum in that great spring drive of 1919 for which our armies were then preparing.

Dr. Elser advises the following routine for the serum treatment:

1. A prophylactic dose of polyvalent serum, given as early as possible after the receipt of the wound, combined with tetanus antitoxin.

2. Bacteriologic examination of the wound and establishment of the presence of gas bacillus infection and determination of the variety of the bacteria. The determination can be made in about twenty-four hours.

3. Administration of specific serum, either single or polyvalent or "pooled," according as there are one or more gas formers found and also antistreptococcus serum.

It is emphasized that serotherapy is entirely auxiliary and in no way replaces operative treatment of the wounds. Quénu, for example, in advocating the use of Leclainche and Vallée polyvalent serum, declares that "the mechanical early and complete clearance of the wound is essential to success;" while Rouvillois and others,[13] using antivibrion septique and antibellonensis serum, "practice the surgical technic exactly as if there were no question of serotherapy." And Marquis[14] concludes that, "although curative serotherapy assures recovery in the great majority of cases, it is only an aid to the necessary surgery."

In November, 1917, the third Interallied Surgical Congress for the Study of War Wounds[17] reported that antiperfringens serum seemed to have given favorable results as a preventive injection, and that the antivibrion septique and antiedematiens serum had given very appreciable results, both from a preventive and a curative standpoint. In November, 1918, the same conservative body announced[18] that preventive serotherapy in the French Army had reduced the frequency of gas gangrene, and that curative serotherapy had given equally encouraging results. But they added that these should never be regarded as more than an adjuvant to surgery which, as they put it, "is still indicated and in no way modified". The specificity of antibodies, of course, complicates the problem. It is like a lock which can be opened only by one key, and consequently the administration of the serum in its preventive and its curative uses must be governed accordingly. Since any of the three common organisms, *B. perfringens*, *Vibrion septique*, or *B. edematiens*, may be the infecting agent, a polyvalent or pooled serum must be used preventively, unless early bacteriologic examination has identified the bacteria present. But, in curative therapy, on the other hand, in which there is always time for the identification of the infecting agent, the specific antiserum or antiserums are preferably employed.

The various reports generally agree that intravenous injection (while not always possible) is to be preferred, in combination with deep muscular injection, proximal to, but in the vicinity of, the wound. Ivens[15] diluted the serum and gave it subcutaneously for fear of the so-called "anaphylactic shock." But, as comparatively few instances of this have been observed to occur, the later practice tends to concentrated serum and larger doses. Sacquépée[19] used from 40 to 80 c.c. of each serum (antivibrion septique and antibellonensis), injecting half into the muscles near the wound and half subcutaneously, at a distance from it, in preventive therapy; and repeated the administration after twelve hours. For curative purposes, he used (in the edematous form) 80 c.c. of antibellonensis (half subcutaneously and half intravenously) and 20 c.c. of antivibrion septique, subcutaneously, the injection repeated in from four to six hours, and again in from sixteen to twenty hours. In the gaseous form of the disease he used from 30 to 50 c.c. of each serum, half intravenously and half subcutaneously.

Duval and Vaucher[19] gave a preventive injection of from 30 to 100 c.c. of triple or pooled serums, prepared by Weinberg and Séguin, injecting it as early as possible (within six hours of wounding) into the muscles above the wound, and advised its administration at the triage.

Ivens,[15] in his most successful series, used an initial preventive dose of 10 c.c. Leclainche and Vallée polyvalent serum, with 30 c.c. of Weinberg and Séguin's triple mixed serums, and followed it up repeatedly if symptoms developed.

The Rouvillois group,[13] following Sacquépée, used the antivibrion and antibellonensis serums in doses a little smaller than Sacquépée and repeated them daily in toxic cases.

Mairesse and Regnier,[12] after establishing by bacteriologic examination the presence of *B. perfringens* in their wounded men, gave an immediate preventive injection of from 20 to 40 c.c. of antiperfringens serum. *Vibrion septique* or *B. edematiens* was found in the wounds of twenty-five of these men, as well as *B. perfringens*. From 10 to 20 c.c. of the proper antiserum as well as of the antiperfringens serum were given in these cases. Those whose wounds developed gas gangrene were given secondary doses of serum, varying from 80 to 100 c.c.

Marquis[14] gave a preventive injection, into the muscles, of antivibrion septique and antibellonensis (20 c.c. of each), if the time was within ten hours of wounding. Patients seen later received 40 c.c. of each. The larger doses were repeated, after twelve hours, in those cases which clinically appeared infected.

The curative doses he gave were intravenous, 60 c.c. of antibellonensis and 20 of antivibrion septique, repeated after six hours and again in twenty-four hours, followed by daily injections of 20 c.c.

The encouraging results of the later work incline one to feel that future improvement in the results of treatment for gas bacillus infection will rest on preventive and curative serotherapy, as well as on observance of the correct operative procedure and on earlier operation.

812 Park Avenue.

17. Sacquépée, Wright and Fleming: Report of the Third Interallied Surgical Congress for the Study of War Wounds, Arch. de méd. et pharm. mil. **68**:18 (Jan.-Feb.) 1918; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. (July) 1918.

18. Conclusions adopted in November, 1918, at the Fifth Interallied Surgical Conference for the Study of War Wounds, Arch. de méd. et pharm. mil. **70**:705, 1918; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. **28**:416 (May) 1919.

19. Sacquépée, E.: Antitoxin Treatment of Gas Gangrene, Paris Letter, J. A. M. A. **70**:554 (Feb. 23) 1918.

Personality of the Physician.—The personal character and habits of the physician are only second in importance to intellectual ability and professional training. The physician should be well mannered, discreet and of good repute; wise in judgment, temperate and self-controlled. Honorable in all his dealings, he should unite firmness with gentleness and should avoid luxury and display, frivolity and levity. He should not be greedy of gain, but should accommodate his fees to the circumstances of his patient, and, if necessary, render his services gratuitously. He should think more of his honor than of profit, and rather run the risk of incurring the ingratitude of a patient he has treated than add to the distress of a sick person by bargaining about fees during illness.—Tweedy, *Brit. M. J.* **2**:598 (May 17), 1919.

THE BASAL METABOLISM AND HYPERGLYCEMIC TESTS OF HYPERTHYROIDISM

WITH SPECIAL REFERENCE TO MILD AND LATENT CASES *

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A recent writer[1] has remarked that our position in the study of thyroid disease is about what it would be in regard to diabetes if we were without our laboratory data relative to the urine and the blood. It is well known[2] that in some very severe cases of thyrotoxicosis the thyroid gland is not definitely palpable, or at most not more so than in very many presumably healthy persons. This emphasizes the fundamental importance, if any emphasis were needed, of looking beyond the goiter for clinical data more distinctive and more strongly diagnostic than the clinical signs and symptoms usually present in thyroid intoxication.

Recent observations have confirmed the suspicion long entertained that other endocrine glands besides the thyroid play a more or less important rôle in exophthalmic goiter. This is especially true with reference to the thymus, the importance of which would almost seem to justify the term "thyroid-thymus syndrome" for this condition. Whether or not this term is too cumbersome, or possibly might too much exaggerate the relative importance of the thymus, it reflects a point of view which needs emphasis at the present time. For instance, Blackford and Freligh,[3] on the basis of seventy-four necropsies, conclude that an enlarged thymus is present in 100 per cent. of patients under 40 years of age, and in about 50 per cent. of those above 40, in whom the average weight of the thymus was 13 gm. Matti[4] says that the monopoly enjoyed by the thyroid in exophthalmic goiter is at an end. Halsted[5] on the basis of a very large experience concludes that the important rôle played by the thymus in exophthalmic goiter is demonstrated beyond question by animal experimentation, and especially by the cures resulting from primary thymectomy and also from secondary thymectomy following thyroidectomy which alone had been unsuccessful.

There are two pressing needs in the study of thyroid disease. The first of these is the differential diagnosis of the so-called borderline cases and the determination of the toxicity of an existing definite goiter. Practically all cases of thyroid disease belong to this group at the outset for a variable period, which may be very short or very long—may in fact be measured by days or by years. A group of more or less vague symptoms, which might be either constant or intermittent, and consisting for the most part of tachycardia, nervousness, and hyperidrosis, and a trifle later varying grades of debility and digestive disorders, and perhaps a little later still, mild, irregular febrile disturbances, formed the basis of the clinical diagnosis. These symptoms are, obviously, the expression of a toxemia with somewhat variable group reactions, and which may in many cases easily be due to any one of several different causes, and especially chronic infections.

The second pressing need is something besides the subjective sensations of the patient and the ordinary clinical manifestations, to enable us more accurately to measure the actual rise and fall of the thyrotoxic state, just as by the rise and fall of hyperglycemia and glycosuria in diabetes we follow the course of that disease. Owing to the neuropsychopathic character of so many of these thyrotoxic patients, it is essential that it should be objective in its nature. In my opinion the recent clinical application of the basal metabolism and alimentary hyperglycemia tests has very satisfactorily met these demands and marks an epoch in the study of hyperthyroidism.

BASAL METABOLISM

We will first consider the basal metabolism which is by far the more important of these two methods. By basal metabolism is meant that minimal quantity of metabolic change essential to the neuromuscular and secretory phenomena of what might be called the basal and necessarily continuous organic functions—respiration, circulation and secretion. Rest and food abstinence approximately eliminate all other metabolic activities. It has been well known since the classical work of Friedrich Müller[6] and Magnus-Levy,[7] about twenty-five years ago, that one of the most characteristic phenomena of hyperthyroidism was an increase in general metabolism, while hypothyroidism produced exactly the opposite result. This, of course, depends on the regulatory action of the thyroid secretion on metabolic processes, which apparently bear a direct relationship to each other. It is perfectly evident, therefore, that the optimum conditions of body function are dependent on a definite quantity of thyroid and synergistic secretions which can only vary within narrow limits without producing more or less serious disturbance.

Since that time a great deal of work has been done by various investigators in confirmation and elaboration of these facts. This work has for the most part been done in well-equipped hospitals and institutions with large and complicated apparatus requiring, for instance, the services of an expert gas analyst and, therefore, not at all practical for general clinical purposes. Taking advantage of the fact that heat production could be measured equally well if not more accurately by oxygen consumption alone than by direct calorimetry, Dr. F. G. Benedict[8] has devised a portable and comparatively inexpensive apparatus which can be operated in any small hospital or office by any one reasonably familiar with laboratory technic. The introduction of this apparatus, which can be placed in the corner of any convenient room, the only accessory being a couch, places the entire medical profes-

* Read before the Section on Practice of Medicine at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

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2. McCarrison, Robert: The Thyroid Gland in Health and Disease, New York, William Wood & Co., 1917.
3. Blackford, J. M., and Freligh, W. P.: The Thymus in Adults with Especial Reference to Goiter, Collected Papers of Mayo Clinic 8: 507, 1916.
4. Matti, H.: Die Beziehungen der Thymus zum Morbus Basedowii, Berl. klin. Wchnschr. 51: 1365 (July 20) 1914, abstr. by J. A. M. A. 63: 812 (Aug. 29) 1914.
5. Halsted, W. S.: The Thymus in Exophthalmic Goiter, Bull. Johns Hopkins Hosp. 25: 223, 1914.
6. Müller, Friedrich: Beiträge zur Kenntnis der Basedowischen Krankheit, Deutsch. Arch. f. klin. Med. 51: 335, 1893.
7. Magnus-Levy: Gaswechsel bei Thyroidea, Berl. klin. Wchnschr., 32: 650, 1895.
8. Benedict, F. G.: A Portable Respiration Apparatus for Clinical Use, Boston M. and S. J. 178: 667 (May 16) 1918.

sion under additional obligation to this distinguished investigator.[9]

The estimation of metabolism by measuring the units of heat production is made possible by the application of Rubner's law, that it is proportional to the body surface from which, with some exceptions, all heat not actually expended in energy production is radiated. The basis of this law is, of course, the universally accepted laws of the conservation and transmutation of energy and the radiation of heat. The chemical forces of the body, which represent the sum total of metabolism, are transmuted into heat, the excess of which over body requirements is radiated from the surface. The standard chosen is the number of calories per square meter of body surface per hour. The body surface is determined very simply by what is known as the "height-weight formula" based on two factors: namely, the height in centimeters and the weight in kilograms. By the use of the chart, plotted from this formula, as worked out by Du Bois,[10] and the two factors of weight and height, the body surface expressed in square meters is instantly read without any calculation whatever. In the determination of oxygen consumption the patient is made to fast overnight and then to lie on a couch for thirty minutes or more to get rid of the respirable products of all metabolism other than basal, resulting especially from the voluntary musculature. The patient breathes through the mouth-piece connected with the open air for a few minutes in order to establish quiet normal breathing, after which the breathing is in and out of a spirometer bell. The oxygen and nitrogen only are rebreathed, for the carbonic acid is entirely removed from the expired air by being passed through an absorbent (soda-lime). The scale on the side of the spirometer bell is read at the beginning of the observation and again at the end of whatever period is chosen (usually ten minutes), both observations being made at the same point of time; that is, at the end of expiration. Since the carbonic acid gas has disappeared and the nitrogen is not influenced, the difference in the readings on the spirometer scale accurately represent the amount of oxygen consumed. The volume of gas is then corrected for barometric pressure and thermometer readings in order to bring it to the standard of sea-level and zero centigrade. This corrected volume which is obtained by the use of logarithms, but which could undoubtedly be determined on the percentage basis with sufficient accuracy for all clinical purposes, is used as the basis of the indirect calorimetric calculation. Each liter of oxygen gas, with the above mentioned corrections, represents 4.825 calories of heat. From this the calories are calculated for one hour. By dividing the calories per hour by the body surface, determined as above indicated, we have the final result of calories per square meter per hour.

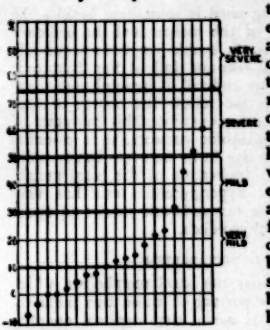

Chart 1.—Basal metabolism in actual and suspected hyperthyroidism.

The number of calories per square meter of body surface per hour varies normally with sex and age and perhaps other physiologic conditions. By the Du Bois or "height-weight" formula, the average figure for men is 39.7; for women, 36.9. In pathologic conditions and conspicuously in disturbances of thyroid secretion, these figures are subject to numerous variations. In hyperthyroidism the increase is striking; very mild cases, including the borderline group, and frank cases of thyrotoxicosis in the quiescent state, may show an increase up to 30 per cent.; mild cases, 30 to 50 per cent.; severe cases, 50 to 75 per cent., and very severe cases, 75 to 100 per cent. or more, following the classification of Du Bois excepting that the "mild" cases of Du Bois (below 50 per cent. increase of basal metabolisms) are subdivided into "mild" and "very mild" to correspond with his "severe" and "very severe" cases above 50 per cent. increase.

TABLE 1.—PARALLEL OBSERVATIONS ON BASAL METABOLISM AND BLOOD SUGAR IN ACTUAL AND SUSPECTED CASES OF HYPERTHYROIDISM

Case	Age	Calories per Sq. Meter per Hour	Percentage of Variation from Normal	Blood Sugar: Fasting	Blood Sugar: First Hour	Blood Sugar: Second Hour
1. Mrs. M.	1983	40	35.3	— 4.6	0.125	0.140	0.110
2. Mr.	S.	1775	37.5	— 4.5	0.089	0.105	0.088
3. Mrs.	F.	1705	42	36.5	0		
4. Mrs.	T.	1455¼	36	37.2	0	0.770	0.080	0.126
5. Mr.	S.	1747	38	40.7	+ 2.5	0.087	0.220	0.250
6. Miss	J.	1770	34	39.0	+ 5.7	0.078	0.120	0.110
7. Miss	K.	1727	37	39.9	+ 8.1	0.112	0.125	0.112
8. Mrs.	R.	907	..	40.0	+ 8.4	0.089	0.139	0.113
9. Mr.	H.	1778	33	43.7	+10.0			
10. Mr.	S.	8	54	45.0	+13.3	0.090	0.150	0.121
11. Mrs.	K.	1378	25	42.0	+13.6	0.071	0.072	0.092
12. Mrs.	E.	1598	50	42.1	+14.0			
13. Mrs.	E.	1740	34	43.7	+18.4	0.110	0 146	0.138
14. Mrs.	Y.	1761	41	45.1	+22.2	0.084	0.194	0.072
15. Miss	W.	1792	32	45.9	+24.4	0.094	0.232	0.161
16. Mrs.	Y.	1700	43	48.3	+30.9	0.130	0.140	0.122
17. Mr.	B.	1780	28	56.3	+41.9			
18. Mrs.	C.	1708	32	55.9	+51.5	0 095	0.210	0.107
19. Mrs.	H.	1735	35	59.0	+60.0	0.092	0.195	0.178
20. Mrs.	B.	1549	29	64.0	+75.6	0.089	0.220	

Table 1 and Chart 1 illustrate the range of cases studied and give the general grouping of the cases. Perhaps the most important feature is the relatively large proportion of cases belonging to the mild and very mild or borderline group. As indicated above, the main purpose of this clinical study was the differential diagnosis and positive identification of the cases in this group, which frequently cannot be done by the ordinary clinical methods. There will be found, with some exceptions, a striking parallelism between the percentage increase of basal metabolism and the relative intensity of the thyrotoxicosis. This parallelism

9. Dr. Janney of New York in his discussion of this paper raised a question which I overlooked in the closing discussion, and which I think deserves attention. He said that the metabolism observation even with the Benedict portable respiration apparatus was not easy. Certainly it is not easy. The greatest care and accuracy are required. For example, if the patient after resting half an hour should, without the knowledge of the clinician, arise from the couch and walk, say 20 feet, and close a window, it would raise basal metabolism about 15 per cent. If the metabolism observation was made after instead of before the 100 gm. of glucose, in the technic described in this paper, this would cause an increase of 5 per cent. The slightest error in measuring exactly the duration of the observation, or escape of air or oxygen around the mouth piece, would introduce substantial error. A failure to correct volume of oxygen to zero C. and sea-level barometric pressure, if such carelessness were conceivable, would make another increase of from 10 to 15 per cent. It will thus be readily seen that if careless or incompetent work should find its way into literature, under a mistaken impression of the simplicity of this procedure, it would be very deplorable.

10. Du Bois, Delafield, and Du Bois, E. F.: A Formula to Estimate the Approximate Surface Area if Height and Weight Be Known, Arch. Int. Med. 17: 863 (June) 1916.

is so close that the percentage increase of the basal metabolism seems to serve as a reliable guide in the classification of the cases and an accurate measure of the fluctuations that may occur either spontaneously or as a result of treatment.

In the study of basal metabolism it is important to remember that like all physiologic processes in either normal or pathologic conditions, it is subject to marked variations. This variation, however, offers no greater difficulties here than in other procedures, such as the tests for albuminuria, glycosuria, the Wassermann test, variations in temperature, etc. When properly correlated with the general clinical syndrome it may be regarded as one of the most reliable and scientifically accurate aids available in any field of diagnosis, and is of inestimable value not only in establishing the diagnosis but in studying the clinical course of this disease.

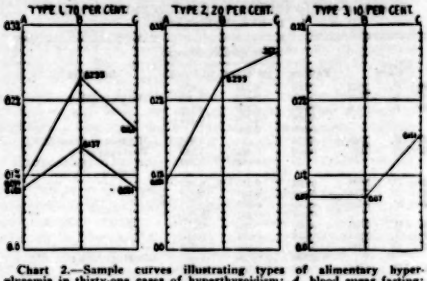

Chart 2.—Sample curves illustrating types of alimentary hyperglycemia in thirty-one cases of hyperthyroidism: *A*, blood sugar fasting; *B*, blood sugar one hour after 100 gm. of glucose; *C*, blood sugar two hours after 100 gm. of glucose.

ALIMENTARY HYPERGLYCEMIA

The occurrence of alimentary hyperglycemia in hyperthyroidism has been known since the work of Tachau[11] in 1911. At that time and until quite recently, the methods of blood analysis were too cumbersome for clinical use. The recent investigations of Lewis and Benedict,[12] Myers and Bailey,[13] and others, however, placed this work on an entirely different and clinically practical basis, and stimulated both experimental and clinical investigations along this line. With the aid of these very simple and accurate colorimetric methods the entire subject of blood sugar content has been worked over afresh within the last few years.

Living in a thyroid zone and confronted almost daily by the diagnostic difficulties above mentioned, I was attracted by the method described in the paper by Denis, Aub, and Minot.[14] This method seemed entirely practical. The test, as outlined by them, can be completed in a little more than two hours, or if immediately preceded by the basal metabolism observation, which is my method of choice, the entire procedure will require less than three hours, most of this time being spent in waiting.

The fasting blood is first taken; then the patient is given 100 gm. of glucose. In one hour a second blood specimen is taken, and in another hour a third, which by this technic completes the blood study. The urine also is examined at the end of the first and second hours, and may be examined for several hours longer, although the glycosuria is a question involving the renal glucose threshold rather than the thyroid question.

Under normal conditions, in the average person in the fasting state, 100 gm. of glucose does not produce a hyperglycemia lasting as long as one hour. At least, this was the result in fourteen of my own cases, and in sixteen of those recorded by Denis, Aub, and Minot.[14] Hamman and Hirschman,[15] however, obtained an alimentary hyperglycemia in normal persons following 100 gm. of glucose, the crest of the wave occurring in from twenty to forty minutes but still remaining to some extent at the end of one hour or longer. In view of these facts, it must be regarded as possible that a transient hyperglycemia occurred during the first hour in observations made according to the methods used in this paper, disappearing at the end of the first hour.

Whatever may be the fact in regard to normal persons, there seems to be no question that in hyperthyroidism after the ingestion of 100 gm. of glucose there is almost invariably a marked hyperglycemia, the crest of the wave occurring at the end of the first hour, or at least recognized then by this method, with a sharp fall in 70 per cent. of my cases by the end of the second hour. This curve was found in twenty-two of thirty-one cases (about 70 per cent.) of hyperthyroidism. In six cases (20 per cent.) the hyperglycemia continued to rise until the end of the second hour. In three cases only (or about 10 per cent.) the hyperglycemia did not occur until the end of the second hour. These curves are represented graphically in Chart 2, based on Tables 3 and 4. The delayed hyperglycemia shown by the curves represented in Types 2 and 3 is probably the result of retarded absorption due to gastro-intestinal conditions. It suggests the possibility of a belated hyperglycemia occurring in some of the cases in which it does not appear within the two hour period. This is apparently a valid criticism of this technic. My answer is that in the forty-five cases of actual or suspected hyperthyroidism forming the basis of this section of this paper, there were thirteen (Table 2) which did not show a hyperglycemia within two hours, and in none of these could the diagnosis of hyperthyroidism be established on other grounds, although two or three still look suspicious.

TABLE 2.—EVIDENCE OF NO HYPERGLYCEMIA IN NON-HYPERTHYROID CASES

Case		Fasting	After 100 Gm. Glucose: 1st Hour	After 100 Gm. Glucose: 2d Hour	Remarks
Mr. F.	1655	0.065	0.080	0.107	
Mr. S.	1775	0.098	0.105	0.082	Doubtful
Miss A.	1175	0.125	0.100	0.100	
Mrs. H.	1388	0.096	0.094	0.095	
Miss M.	1627	0.095	0.080	0.100	
Mr. B.	1660	0.077	0.080	0.082	
Mr. S.	1711	0.085	0.055	0.080	
Mr. M.	1608	0.073	0.081	0.087	
Miss K.*	1727	0.112	0.129	0.113	
Mrs. A.	1751	0.080	0.097	0.091	
Miss R.	1707	0.090	0.091	0.088	
Mrs. M.*	1263	0.125	0.140	0.119	
Mrs. K.	1378	0.071	0.073	0.092	

* Cases 1263 and 1727 show an absolute hyperglycemia, but it will be noted that the fasting blood sugar is quite high, raising a question of an associated pathology.

11. Tachau: Deutsch. Archiv. f. klin. Med. **104**: 445, 1911.
12. Lewis and Benedict: J. Biol. Chem. **20**: 61, 1915.
13. Myers and Bailey: J. Biol. Chem. **24**: 147, 1916.
14. Denis, W.; Aub, J. C., and Minot, A. S.: Blood Sugar in Hyperthyroidism, Arch. Int. Med. **20**: 964 (Dec.) 1917.
15. Hamman, L., and Hirschman, I. I.: Studies on Blood Sugar, Arch. Int. Med. **20**: 761 (Nov.) 1917.

In practically every case in which the diagnosis of hyperthyroidism seemed to be reasonably well established on other grounds, including the basal metabolism observations, a definite hyperglycemia occurred not later than the second hour, and in 90 per cent. of the cases within the first hour. As a routine procedure, therefore, I believe that the two hour period is sufficient.

In doubtful cases, and especially when the determination of basal metabolism cannot be made, the alimentary hyperglycemia test, as above outlined, may prove to be of considerable value. Of course diabetes, alcoholism, etc.,[16] must be excluded.

SUMMARY

The differential diagnosis of many mild, atypical or very early cases of thyrotoxicosis by means of the ordinary clinical signs and symptoms can only be made with varying degrees of probability. The need is, therefore, very great for definite objective data, either decisive or very strongly corroborative, not only to determine diagnosis, but to estimate therapeutic results. The clinical application of basal metabolism and alimentary hyperglycemia satisfies these demands in a very scientific, practical and satisfactory manner.

Basal metabolism, or the metabolism of the fasting body in the resting state, can be quickly and accurately determined by measuring the oxygen consumption with the Benedict portable respiration apparatus. The average normal heat production, which is an accurate index of metabolism, is about 39.7 calories for men and 36.9 for women by the "height-weight" formula per square meter per hour under the conditions indicated. Physiologic variations of not more than 10 per cent., and nearly always much less than this, may occur in either direction.

TABLE 3.—EVIDENCE OF HYPERGLYCEMIA IN LATENT BUT SUSPECTED HYPERTHYROIDISM

Case		Fasting	After 100 Gm. Glucose: 1st Hour	2d Hour	Remarks
Miss H.	705	0.086	0.190	0.118	
Miss S.	1402	0.075	0.160	0.210	
Miss H.	1654	0 070	0.140	0.120	
Mrs. F.	1636	0.070	0.140	0.140	
Mr. A.	1570	0.900	0.168	0.146	
Mrs. H.	1640	0.080	0.200	0.100	
Mr. W.	1641	.....	0.134	0.174	
Mrs. T.	1644	0.086	0.122	0.134	
Mr. B.	1684	0.091	0.223	0.267	Maximum increase
Mr. B.	1683	0.070	0.070	0.151	
Miss B.	1673	0.075	0.081	0.121	
Mrs. F.	1721	0.132	0.191	0.139	
Mrs. F.	1612	0.080	0.149	0.144	
Mr. B.	1724	0.068	0.200	0.175	
Mrs. G.	1620	0.060	0.138	0.089	
Mrs. S.	1728	0.088	0.137	0.081	
Mrs. Y.	1761	0.084	0.194	0.072	
Mrs. R.	907	0.089	0.139	0.113	
Mrs. T.	1455½	0.077	0.060	0.136	
Mr. S.	1747	0.097	0.226	0.256	
Mrs. F.	1740	0.110	0.146	0.138	Minimum increase, 33%

In hyperthyroidism there is an increase up to 100 per cent. or more, according to the severity of the intoxication, which varies in different cases, and in the same case at different times.

In hyperthyroidism there is a diminished tolerance of carbohydrates with alimentary hyperglycemia, and also with glycosuria whenever the hyperglycemia exceeds the renal glucose threshold of the individual case.

16. In view of Pemberton's very valuable contribution made at this session, we must add arthritis to the list, and further studies may possibly add still more. The alimentary hyperglycemia test can only be regarded, then, as confirmatory, our main reliance being placed on basal metabolism.

In every case of hyperthyroidism studied (thirty-one cases) the blood sugar content was increased within two hours from 50 to 200 per cent.

In 70 per cent. of thirty-one cases the maximal rise occurred at the end of the first hour, with a more or less sharp decline at the end of the second hour, proving that the crest had been reached and passed.

The very few cases in which hyperglycemia is highest at the second hour may be explained by gastric hypomotility and slow intestinal absorption.

TABLE 4.—EVIDENCE OF HYPERGLYCEMIA IN FRANK HYPERTHYROIDISM

Case		Fasting	After 100 Gm. Glucose: 1st Hour	2d Hour	Remarks
Mr. C.	1649	0.060	0.128	0.080	
Mr. S.	1684	0.085	0.086	0.085	Postoperative
Mr. S.	8	0.080	0.150	0.121	
		0.078	0.170	0.113	
		0.080	0.220		
Mrs. B.	1549	0.054	0.180	0.076	Highest increase 233%
Mrs. G.	1597	0.060	0.128	0.129	Postoperative
			0.082	0.100	At end of rest treatment period
Miss C.	1702	0.065	0.210	0.167	
Mrs. L.	1719	0.083	0.157	0.135	
Miss W.	1723	0.140	0.263		
		0.094	0.223	0.161	
Miss H.	1732	0.092	0.195	0.178	
Miss J.	1776	0.078	0.120	0.110	
Mr. C.	1649	0.080	0.165	0.120	
		0.070	0.096	0.075	Postoperative
Mrs. G.	1597	0.054	0.180	0.076	

The failure of the hyperglycemia to rise proportionately to the increased metabolism and to bear any direct relationship to the intensity of the thyrotoxicosis suggests that it is an indirect phenomenon due perhaps to overexcitation of other organs, for example, the pancreas, which in exceptional cases fails to respond to the thyroid stimulation.

The application of these tests will probably reveal a much greater incidence of hyperthyroidism than has formerly been recognized, and will especially enable us to make a clear diagnosis between toxic and nontoxic goiters. While a final diagnosis is altogether a question of clinical judgment, and should not be made exclusively in the laboratory; and while neither increased metabolism nor alimentary hyperglycemia is pathognomonic of hyperthyroidism, yet, when rationally correlated with the remaining clinical data, they together make as clear-cut a diagnosis of hyperthyroidism as a positive Wassermann does of syphilis in a suspected case.

ABSTRACT OF DISCUSSION

DR. JOHN C. HEMMETER, Baltimore: It is a great pleasure to listen to a paper that aims to have physiologic facts for its foundations. Dr. McCaskey's aim is simply to afford a new and practical method of diagnosis in doubtful cases of diseases of the thyroid. He assumes that the processes of oxidation in hyperthyroidism are increased and that there is a hyperglycemia two hours after 100 gm. of glucose are injected into the circulation and that this hyperglycemia is pathognomonic. I have seen the apparatus Dr. McCaskey employed for the respiring of a measured amount of oxygen by a resting subject. I saw no means for the absorption of the humidity that the patient himself gives off to the expired air. It makes a good deal of difference in the carbon dioxid absorbed by lime and the patient's own humidity. If it increases that of the respired gas to 80 it will increase the percentage of blood sugar by 13 per cent. of the normal. I would suggest some provision to account for this change in the blood sugar due to the humidity gradually accumulating in the spirometer, i. e., if the expired air actually reenters the spirometer. I do not wish to go through all the argu-

ments of sugar metabolism from Claude Bernard, Pavy and Otto Cohnheim and our own men down to Folin, Frederick M. Allen and others, but I hold that when you inject 100 gm. of sugar into an individual, a hyperglycemia two hours thereafter is physiologic. Therefore the method requires revision and further investigation. H. J. Hamburger (Groningen, Holland) in the most recent investigations which have come to me in the last ten days is opposed to this view of colloidal blood sugar. He says that all sugar when injected into the animals that have a separate circulation in the glomeruli from that of the renal tubules, as in the frog, behaves like sodium chlorid, and he gives further evidence that sugar exists in the blood just like sodium chlorid—not in combination. Postprandial hyperglycemia can be found in 90 per cent. of normal people. That there is an excess of blood sugar that can be caused by injecting 100 gm. of dextrose directly into the circulation can be ascertained by using several of the most modern methods for blood sugar determination. The whole matter has been gone over by McCleod in his recent book on biologic chemistry as applied to medicine. The excessive oxidation in hyperthyroidism appears to be well established by many biochemists. But in this very fact when associated with hyperglycemia we have a paradox and that paradox is one of the most puzzling things in medicine. Here we have a furnace that will burn anthracite coal and refuses to burn paper although you blow in pure oxygen. Of all the foods the carbohydrate molecule is the easiest to split up under above conditions, and the organization splits up the protein molecule, the most difficult, and even oxidizes the carbohydrate molecule moiety of the proteid molecule. It reminds one of a simile from a verse in the "Ancient Mariner"—"Water, water, every where, nor any drop to drink"—"Sugar, sugar every where, and not a milligram to oxidize."

DR. LEWELLYS F. BARKER, Baltimore: These two tests—that for measuring basal metabolism and that for measuring the glucose content of the blood—are certainly valuable tests in clinical diagnosis, especially for deciding upon the existence of what we call "overactivity of the thyroid gland." The methods, to the uninitiated, sound complex. They are, in reality, fairly easy to perform; and it is interesting that clinical men have devised simple modes of making measurements that formerly involved a very complicated technic. The basal metabolism is certainly increased in severe forms of exophthalmic goiter, and the sugar content of the blood, also, seems to be increased. Dr. Hemmeter has suggested that the existence of a hyperglycemia implies a state in which the body cannot split the carbohydrate molecule. May it not rather be simply that the sugar molecule, in some states at least, is mobilized more quickly than under normal conditions. For if the body, in the state under consideration, can split, as he says, the protein molecule and can burn the carbohydrate moiety of this protein molecule, why should it not be able, in the same state, to split the sugar molecule itself. The hyperglycemia might then be looked upon as the result, merely, of a sudden and rapid mobilization of sugar. Whether the increased basal metabolism and the hyperglycemia are due to the direct action of thyroid products, or are indirect results of thyroid activity, remains to be seen. We must think of the influence of the thyroid products on the cell metabolism all over the body, on the one hand; and, on the other, we must keep in mind the influence of the thyroid products on the activity of the other endocrine glands. I would mention one relationship, especially that of the thyroid to the suprarenal gland. Many of the phenomena that we speak of as hyperthyroidism may, in reality, be due to hypersuprarenalism, and it may be that some of our clinical tests for thyroid activity measure directly rather the suprarenal activity, and only indirectly the thyroid influence. I simply point out some of the difficulties, though I think that the tests are really valuable in internal medicine and I hope that they will be much more employed, and that we may come to some agreement as to what the results they yield may mean.

DR. NELSON W. JANNEY, New York: With regard to the blood sugar tolerance test it has been the experience of myself and co-workers that by standardizing the technic it is possible to get more definite and accurate results than previously obtained. We now give, as already reported, 1.50 gm. sugar dissolved in 2.5 c.c. of water per kilogram of the patient's body weight, adding the juice of one lemon for flavoring. The fasting blood sugar value is obtained immediately before and one and two hours after taking the sugar lemonade. We thus find the normal blood sugar level to run from 0.12 to 0.14 per cent. without glycosuria. I wish to call attention to a very important point not yet presented in this discussion, namely a criticism of the value of the blood glucose tolerance test in diagnosis. Its value in this respect is problematical for myself and others have repeatedly observed abnormally high blood sugar curves in various conditions, i. e., pituitary disorders, Addison's disease, and other less clearly defined endocrinopathies. Unfortunately, therefore, this test, though frequently indicating an abnormal carbohydrate metabolism in hyperthyroidism, is by no means pathognomonic of that condition. We should, I feel, await with caution and patience more extended observations in this most interesting field.

DR. GEORGE W. MCCASKEY, Fort Wayne, Ind.: In regard to Dr. Hemmeter's remarks, no matter whose figures he quotes, 0.3 per cent. as the normal blood sugar has certainly been discredited entirely. This figure was obtained by imperfect methods in use at that time. It has only been possible in the last few years by the use of the colorimeter to clinically determine the blood sugar content accurately. I believe we can do it now very closely. As to the factor of humidity in metabolism observations, I am not a physicist, but have made all the corrections indicated by Dr. Benedict. The fact that in forty-five consecutive cases the fasting blood sugar content is about what it ought to be, shows that there was no gross error, and even admitting any error, this error will be the same in both fasting and alimentary glycemic test, and that is all that is really necessary for the purposes of this clinical study, as it makes the comparative values reliable. Dr. Barker, I think, hit the nail on the head when he said that the hyperglycemia is not directly caused by the thyroid excess. I believe that the thyroid with other synergistic members of the endocrine system may modify other functions, such as the internal secretion of the pancreas, or the glycogenic or storage function of the liver, and in that way account for changes in blood sugar content. It is not simply a question of oxidation. It may be, among other things, mobilization, as Dr. Barker said. A failure on the part of the storage function of the liver or the voluntary musculature may account for the hyperglycemia. Dr. Jamey's criticism that a certain amount of glucose should be given per kilogram of body weight is well taken and is probably important. As a matter of fact, however, it did not seem to modify clinical results. Dr. Geyelin found glycosuria when the glucose intake exceeded 1.8 gm. per kilogram of body weight per hour. This is not a thyroid question at all, but a question of the renal glucose threshold, which Denis, Aub and Minot have established at about 0.17 or 0.18 per cent. blood sugar. Undoubtedly the scientific way to do this is to give a certain amount of sugar per kilogram of body weight, although in none of my thirteen normal cases did a hyperglycemia occur with a uniform intake of 100 gm. of glucose irrespective of body weight, unless the fasting blood sugar was already high. This is probably best accounted for by the enormous reserve function which apparently enables a patient weighing, say one hundred pounds, to promptly metabolize 100 gm. of glucose as readily as a patient weighing 150 pounds. It is perfectly obvious that if the glucose were increased, a point would be reached at which one patient could metabolize it and the other could not.

War Diet and Diabetes.—Bouchardat in France and Klemperer in Germany, reported at the time of the Franco-Prussian war in 1870, that under the dietetic restrictions entailed by the war, the course of diabetes was as a rule less severe. Elias and Singer have recently published similar observations. In the *Wiener klinische Wochenschrift* they state that classifying their cases by age and grade and comparing the course before and since the war began, demonstrate an unmistakably favorable influence from the war diet.

COMPATIBILITY OF LONG LIFE WITH LOW RENAL FUNCTION *

JAMES P. O'HARE, M.D.
BOSTON

It is customary to consider chronic nephritis as a steadily progressive, degenerative process. As a rule, we do not think of the possibility of a stay in its progress when the disease has reached an advanced stage. One would certainly predict in such a case that the duration of life, with renal function near zero, must be extremely short. And yet, at the Peter Bent Brigham Hospital we have observed several patients who have lived for three or four years with such a low renal function. I wish here to report two such cases.

In the time allotted, no complete study or detailed description of the cases is possible. In order to tell as much as possible I have tried to make the chart self-explanatory.

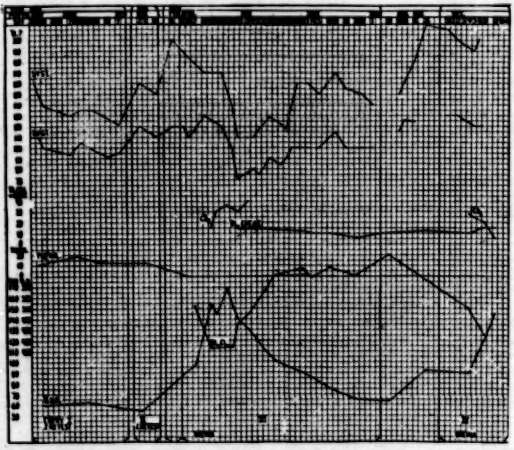

Chart 1.—Case 1: *Syst.*, systolic blood pressure; *Diast.*, diastolic blood pressure; CO_2, bicarbonate combining power of the plasma; *Bl. Creat.*, creatinin of the blood; *Phthal.*, phenolsulphonephthalein excretion; *N. P. N.*, nonprotein nitrogen of the blood; *Cl.* or *Bl. Cl.*, blood chlorid; *B. U. N.*, blood urea nitrogen.

REPORT OF CASES

Case 1.—A girl who, at 9, had scarlet fever without known sequelae; at 18 and 19 had a severe anemia necessitating her being in bed for three months and one month, respectively. In view of subsequent events I think we can fairly assume that our patient had an unrecognized acute nephritis following her scarlet fever, and at 18 and 19, acute exacerbations of a chronic nephritis. So far as we could learn, there was no other possible etiology.

About this time she began to develop vascular symptoms which took the following forms: spasmodic blurring of sight; cramps in legs and fingers, and occasional dizzy spells. Morning headaches then began to appear with increasing frequency, severity and duration. In addition there were occasional drowsy spells. Apart from the latter, our patient's symptoms had been entirely vascular and not at all renal. At the age of 23 (in May, 1915) she entered the hospital for her headaches.

Physical examination at that time revealed a moderate secondary anemia; a normal heart; no evident sclerosis of peripheral or retinal vessels; a blood pressure of 165—110; no edema, and negative eye grounds.

The urine was of low gravity, and contained a slight trace of albumin, but no casts. (It is important to note that at no time during our three and one-quarter years of observation did the urine show any sign of an active degeneration in the kidney. Hyaline casts even were very rare.) The phenolsulphonephthalein excretion was only 12 per cent., instead of the normal 60 to 80 per cent. The blood urea nitrogen was 59 mg. per hundred c.c., about four times the normal. The renal test diet showed a marked inability on the part of the kidneys to handle water, salt and nitrogen.

During the patient's six weeks' stay in the hospital, her general condition improved, the headaches were relieved, and the blood pressure fell to normal. Her renal condition, as far as we could measure it, did not change.

It would seem fair to conclude that the vascular condition with intermittent hypertension was responsible for the chief symptom—headache—and that at this time the kidneys, though markedly sclerosed, were giving her comparatively little trouble in spite of their low function. I do not believe, however, that any of us felt at the time that the patient would live for three and one-quarter years with such a low renal function.

In the sixteen months previous to her second entry in November, 1916, the patient was fairly well. Her headaches, however, returned; nosebleeds were common, and there was an occasional drowsy spell. Her symptoms were still largely vascular. She came back to the hospital chiefly for study.

This showed the following changes: (1) definite cardiac hypertrophy; (2) a return to her hypertension; (3) some sclerosis of the retinal arteries (though none could be detected in the radials and brachials), and (4) a few white spots (probably degenerative) in the retina. The urine and all of the functional tests were identical with those at the previous entry. There was no evidence of active renal degeneration, and renal function was near the minimum.

It would seem fair to conclude that the vascular disease was progressing with an effect on the heart and retina but no measurable change in the kidneys.

During 1917 the patient was not seen, but was apparently very well except for her headaches. She went about, took long walks, danced, etc. In December she had the grip, apparently without much effect. In February, 1918, she had an attack suggesting renal colic with hematuria. About the first of April she caught a severe cold, which was followed by a very severe headache, vomiting, much blurring of vision and edema of face, neck and upper sternum.

At entrance this time she showed the following new findings: (1) the tender edema mentioned above; (2) a heart of the same size but with more signs of hypertrophy; (3) definitely palpable radials; (4) greater sclerosis of retinal arteries with small hemorrhages in each eye; (5) a higher blood pressure, 190 and 120; (6) the phenolsulphonephthalein excretion had dropped to 0, where it stayed until her death, eight months later, and her blood urea nitrogen had climbed to 98 mg.

In the hospital she began to improve rapidly. Her blood pressure began to fall. She then developed an acute infection of the antrum, and with this went immediately into uremia with drowsiness, twitching, two severe convulsions and coma. Her blood pressure did not rise and soon after showed a fall to a very low normal. There was a marked acidosis, the blood carbon dioxid reaching a level of 16 mm. The blood urea nitrogen rose rapidly to 168 and the blood chlorid fell from

* From the medical clinic of the Peter Bent Brigham Hospital.
* Read before the Section on Practice of Medicine at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

5.05 gm. liter to 4.20. This drop may have been due to an infusion of sodium bicarbonate, although we know that the blood chlorid is frequently low in uremia. With the improvement in the acidosis, the blood chlorid rose to a high level. The patient then began to improve, although she was restless and twitched for three weeks. The acidosis quickly disappeared and the blood urea nitrogen fell very gradually to near its former level—70 mg. It is of interest to note that the creatinin of the blood at this time was high, 14 mg. This is supposed to indicate death within a short time, and yet the patient lived eight months. Before her discharge in July her blood pressure gradually rose, with the improvement in her general condition, to a level slightly above normal.

We can reasonably infer that at this entry her renal function, which had been sufficient up to now, had begun to give way as a result of an acute infection. She entered in impending uremia but started to improve until a new infection plunged her into an outspoken severe uremia.

In the five months previous to her last entry, Nov. 30, 1918, the patient was fairly well. Her old symptoms persisted and her blood pressure climbed rapidly to well over 200. Then to her vascular renal symptoms she began to add cardiac ones—dyspnea and angina pectoris. There were occasional periods of low grade uremia, too, and her strength was poor. On reporting to our renal class in November, her blood urea nitrogen was found to be over 90 mg., and she was consequently sent to the hospital.

The findings at this time were similar to those at her last entry except that the radials were very tortuous; the retina showed fresh exudate and hemorrhages; blood pressure was much higher and there was twitching of the arms and legs. All of the laboratory findings were the same except that the blood urea nitrogen was higher. The blood chlorid had fallen considerably from the last estimation in July.

In the hospital she steadily went down hill. Twitching became more prominent, but there were no convulsions. Nausea and vomiting became extreme. Edema developed around her jaws. We noted a pleurisy (which was found to be superimposed on a pneumonia), and noted also what seemed to be a pericardial rub. This proved to be endocardial and due to fresh vegetations on the aortic and mitral valves. In the meantime the blood pressure had dropped some. Acidosis, as indicated by the blood carbon dioxid, developed. The blood chlorid fell (as a result either of her pneumonia or her uremia), and her blood urea nitrogen rose to 120 mg. before death.

At necropsy the kidneys were the smallest we had ever seen. The two together weighed about 60 to 65 gm. They showed a well marked vascular nephritis. The renal arteries were not abnormal except that the aortic orifices were almost closed by atheroma; but the vessels within the kidney were quite prominent. The cortex was only 2 mm. in thickness.

Under the microscope there was practically no kidney substance left. The arteries, large and small, were all affected, showing thickening, narrowing and even obliteration of many of the smaller ones. The glomeruli were extremely rare and showed all sorts of changes from slight hyalinization of the capillary wall to complete thrombosis of the whole tuft. Some were just compact masses covered with epithelium. The subtended tubules were mostly atrophied. There was much connective tissue. The sclerosed areas alternated with those where the glomeruli, though few, were fairly normal and connected with hypertrophied, apparently functioning, tubules.

Here, then, is presented a case of nephritis which, starting presumably from scarlet fever at 9, had gone on for eighteen years, passing through various phases. Nine and ten years after the assumed onset the patient had what we believe to have been acute exacerbations of a chronic nephritis. Coincidently with, or subsequent to, these attacks the vascular apparatus of the body—including the kidney—began to play an ever-increasing part. When the patient first came under our observation, fourteen years after the onset of the disease, she had a markedly sclerosed kidney with a very poor renal function. Just how poor this was can be readily seen. Three years before her death the two hour renal test showed very advanced disease in the kidney. Her excretion of phenolsulphonephthalein in these years has only once been as high as 18 per cent., and for the last year of her existence has been practically 0. Her blood urea nitrogen has always been over 50 mg., about four times the average value. During the last year her blood creatinin has always been around 10 mg. And yet, in spite of this extreme renal impairment, she got along very well with these kidneys for three and one-quarter years. This was undoubtedly due to the fact that the process in the renal parenchyma had become inactive and that nothing happened to light it up. The only possible changes within the kidney were the slow intravascular ones which could not be measured. By living carefully within the low limits set by the few functionating glomeruli and tubules, our patient lasted much longer than could have been expected.

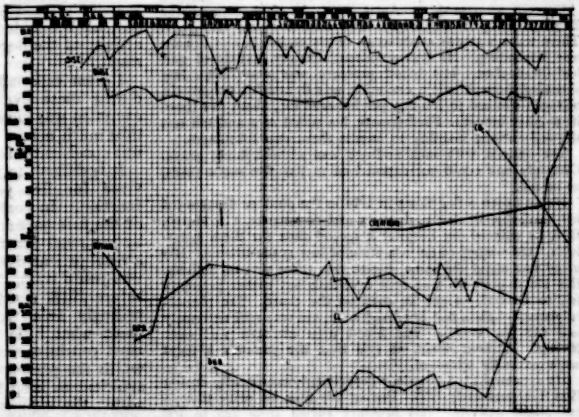

Chart 2.—Case 2; abbreviations same as in Chart 1.

The important thing to bear in mind is that for the last ten years of the patient's life, the disease had been almost entirely a vascular one with greater vascular change outside the kidney than within. The renal function, while low, was sufficient until infections broke the narrow thread by which it maintained itself.

CASE 2.—An old man on whom we have data for eleven years before his death in 1919 (in fact, we have records of normal urinalyses at the Boston City Hospital as far back as 1891 and 1893) on account of his age, arteriosclerosis, and other complicating factors, presented symptoms that were more complex and the development of which it was more difficult to trace. The apparent onset of his nephritis was

in January, 1908, when he was 62 years old. He had a "bad cold" followed by swelling of his eyes and face. He was in bed intermittently for eight weeks, part of the time in the Boston City Hospital. Here the records showed albuminuria and hematuria. About the first of June the edema had increased, and there were dyspnea and orthopnea. This necessitated his entry into the Massachusetts General Hospital, where he stayed for two weeks. The diagnosis of subacute glomerulonephritis, ascites, double hydrothorax and cirrhosis was made. The urine showed a large trace of albumin, a few hyaline and granular casts, and a moderate number of red and white cells. The blood pressure, determined for the first time, was found to be 150.

The patient was not seen again for three years, but was apparently well until just before his next visit to the Massachusetts General Hospital in October, 1911. At this time the diagnosis was chronic nephritis and cardiac decompensation. His urine still showed signs of some renal activity. His blood pressure, as can be seen on the chart, had increased to 190—125. The first phenolsulphonephthalein test showed an excretion of 17 per cent. in one hour.

The patient was seen a few times in the outpatient department of the Massachusetts General Hospital in 1911 and 1913. In 1914 he had a flareup of his nephritis following an acute diarrhea.

Shortly afterward, in April, 1914, he first entered the Brigham Hospital (Chart 2). His condition was very poor. There was an acute exacerbation of his nephritis, and uremia was impending. He was stuporous, drowsy,, nauseated and had headaches. His blood pressure was over 200. His phenolsulphonephthalein excretion was 0, and his nonprotein nitrogen climbed to 130 mg. per hundred c.c., about five times its average amount. Furthermore, his added urea and salt test showed marked inability to handle these two substances.

The outlook with such findings was without doubt grave. Certainly one could not expect him to live five more years, as he did.

He was seen a few times in 1914 in the outdoor department for headache, weakness, dyspnea and drowsiness. In March, 1915, he entered our hospital a second time for these symptoms. He seemed to be in a state of low grade uremia. His urine was about the same, except that there was no activity. His blood pressure was still over 200, but rather promptly fell to normal, as can be seen on the chart. The phenolsulphonephthalein had improved a bit, but was still extremely low (13 per cent.). The blood urea nitrogen was over 60 mg. Without doubt, at this time the patient's kidneys were markedly sclerosed.

He appeared at the outdoor department occasionally during 1916, 1917 and early 1918. During this time his urine showed but slight activity. His pressure varied from 225 to 160 systolic, with the diastolic more steady around 100. The phenolsulphonephthalein excretion was only once as high as 14 per cent., and the blood urea nitrogen was between 40 and 60 mg. In the early part of 1918, a two-hour renal test showed a marked fixation of all elements.

In April, 1918, he entered the Brigham Hospital the third time for slight toxic symptoms. He was not very sick and his stay was short. His urine showed no change. His blood pressure had dropped to nearly normal, his phenolsulphonephthalein and blood urea nitrogen were about the same as before. He returned in June for two weeks because of a "convulsion" and great drowsiness. There was little new, however, to be found. His urine was no different. His blood pressure was a little higher, around 175.

In September of that year he was admitted for the fifth time for severe dyspnea, palpitation and occasional twitching. The dyspnea was due to a chest full of fluid and was relieved by tapping. His blood pressure was again over 200, his phenolsulphonephthalein practically 0, and the blood urea nitrogen between 40 and 50 mg.

Between the fifth and last entries there was nothing especially new except that his heart began to give more trouble, with occasional sudden dyspnea and tightness in his chest. In November, definite alternation of the pulse was noted.

Dec. 21, 1918, he entered for the sixth time, because of precordial distress. He did not seem awfully sick but quickly became more and more drowsy. His respirations grew gradually slower and deeper. He became irrational, semiconscious and finally comatose. Twitching of hands, feet and mouth occurred, but no convulsions. There was anuria for three days. In the meantime the blood pressure dropped, as it frequently does before death. A marked acidosis developed, the blood urea nitrogen mounted quickly to 200 mg. and the phenolsulphonephthalein was, of course, 0.

At necropsy the kidneys were very small (62 and 70 gm.) red and granular. The cortex measured only 2 to 3 mm. The renal artery and larger branches were not abnormal. Microscopically, however, the vessels within the kidney showed marked arteriosclerotic changes. Many of them showed all stages of obliteration. There was very little kidney parenchyma left. The intact glomeruli were extremely scarce. Many showed recent infarction from thrombosis of the vessels leading to them. Tubules had disappeared in great numbers. Those that were left showed degeneration of all kinds. The connective tissue was particularly prominent.

COMMENT

Here, then, is a case of chronic nephritis which, starting apparently with an acute process in 1908, had active flareups during 1911 and 1914. By the latter year the process was a very severe one with the function of the kidney practically nil. After that the activity of the degenerative process was comparatively slight.

I want especially to call attention to the fact that during these five years the phenolsulphonephthalein excretion was never over 14 per cent., and most of the time much nearer 0, and that the blood urea nitrogen was consistently four or five times the average normal.

It is difficult to determine just why this patient survived for five years with such an extremely low function. In contrast to the carefully regulated life of the first patient, who lived within the low level set by her renal function, this patient did everything that a renal patient should not do—at least up to 1917. He was just a tramp, who ate whatever he could get and, before 1918, drank heavily. He was, however, surprisingly free from infections which might break down what little functioning tissue remained. One must conclude that the small amount of renal tissue which the patient had during the last five years was sufficient to keep him alive until the vascular disease within the kidneys had progressed to such an extent that in the last few weeks many of the small vessels became thrombosed, and with this the glomeruli supplied were put out of commission.

These two cases, then, demonstrate the possibility of prolonged existence with an exceedingly small amount of renal tissue and an extremely low renal function. The only possible explanation is that the disease during this time was a purely vascular one. The pneumonia played directly or indirectly an important part in the death of the first patient. The thrombotic obliteration of essential glomeruli was responsible for that of the second.

It can hardly be said that the true prognosis was in any way indicated by the tests performed.

536 Commonwealth Avenue.

ABSTRACT OF DISCUSSION

DR. HERMAN O. MOSENTHAL, New York: The cases Dr. O'Hare described are of great interest and importance. He made mention of the fact that most of us would not have expected these patients to live as long as they did and I believe we can readily agree with that statement. The problem before us is to find out what factors determine the

prognosis in nephritis and to apply this knowledge in the treatment of our patients. The expectancy of life of the sufferer with chronic nephritis may be regarded as being measured by three possible terminations: First, factors which may be considered to be entirely extrarenal, of which heart failure, apoplexy and intercurrent infections constitute those most constantly met. It is our inability to gage their progress satisfactorily that is largely responsible for the uncertain prognosis in chronic nephritis. Second, many patients with chronic nephritis die of uremia before renal function has diminished to such a degree as to render renal insufficiency any more than a contributing factor. Often the phthalein excretion lies between 20 and 30 per cent. and the blood urea nitrogen at a level of from 40 to 50 mg. per hundred cubic centimeters of blood. It is probable that this state of affairs is a toxemia, but from what tissue this poison originates, what its nature is, and what the exact conditions are that call it into action are all open questions. The sudden rise of blood nitrogen seen in one of Dr. O'Hare's cases may possibly indicate an excessive protein destruction which I believe is characteristic of certain phases of the toxemia under discussion. Third, if all the above vicissitudes leave the subject of chronic nephritis alive he finally develops an increasing renal insufficiency to which he succumbs. This is a very prolonged process and it is almost incredible how low renal function may drop and the patient maintain at least fair health. Dr. O'Hare's report illustrates this very well. I have seen some similar cases though more of them were followed for as long a period. In another condition, polycystic kidney, in which an uncomplicated renal insufficiency develops, the same phenomenon of prolonged life with a maximal impairment of renal function is often found. As far as prognosis is concerned, it becomes evident that only very few nephritic patients really die as the result of renal insufficiency but that most of them cease to live because of extrarenal influences.

DR. EDWARD F. WELLS, Chicago: Satisfactory management of the patient depends largely on taking him into full confidence as to the diagnosis, the prognosis, and the general plan of treatment. Chronic interstitial nephritis is not a disease of the kidneys alone, but the blood vessels, heart, lymphatics, and other tissues are so essentially implicated that it is impossible to separate them. It takes a profound clinician to estimate within wide limits, the excretory capacity, under stress, of the interstitial nephritic kidney; and it requires a wiser physician than most of us to state how long any one of these patients may live. I have seen patients in whom the output of urea was extremely small for many successive months, in whom, when placed on some extra strain the kidneys have passed such quantities of urea as are beyond ordinary credence. Therefore, our prognosis should be extremely circumspect. Our first examination of a chronic interstitial nephritic patient should be made with painstaking care, and accuracy. The renal capacity should be estimated as closely as possible from several points of view, as, e. g., the excretion of water, of salt, the rapidity and completeness of the passage through the circulatory system, including the lymphatic circulation, of titratable solutions, and of the output of some of the waste products of metabolism. I value highly the measurement of the capacity of the kidneys to excrete urea, and always include this as an important feature of the investigation. The dietetic, regimental and medicinal measures which we employ may, probably, assist the kidney in its functions. However, some adventitious conditions are beyond our control as, e. g., the entrance into the system of an acute infection. In my own experience these most frequently transform, by disturbing the circulatory balance, a satisfactory progress to a condition from which the patient rarely completely recovers, and is often the beginning of a more or less prolonged downward course, ending fatally. Under these circumstances the patient will become dyspneic, and apneic; dependent edema will attract attention. It is absolutely necessary for the patient to maintain a posture as nearly horizontal as possible for a prolonged period, at least six weeks.

DR. LEWIS A. CONNER, New York: The second of Dr. O'Hare's cases illustrates a point which is of great practical importance. That is, that in aged people the usual standards of normal kidney function are not applicable. If we attempt to prognosticate, in the case of people of 70 or 80 years of age, in terms of the standards of renal function which we apply to younger people, we are likely to make embarrassing mistakes. In such patients very low readings of the phthalein test and very high figures for blood nitrogen, creatinin, etc., are compatable with fairly good health and with many years of life.

DR. JAMES P. O'HARE, Boston: This type of case is a rare condition. We do not see it very often but we do see it often enough to warrant hesitancy in making a prognosis in a chronically sclerosed kidney. We have had also a few cases of the edematous chronic glomerular nephritis and the patients have lived for quite a considerable period, that is, for months, with a very low renal function, and then have died from a pneumonia. I was glad to hear Dr. Mosenthal comment on the fact that death in the nephritic is very frequently due to causes not essentially nephritic but to other conditions like cardiac failure and infection. I have often been very much disappointed in cases that we had studied for a long time to find the patient dying of an acute infection or a cardiac complication when we were looking for a pure nephritis at necropsy. It is important for all of us to make records of our observations on these cases so that if a patient does live for a longer period than we expected, we can analyze the data obtained. Most of us do not do that. In fact, there has been no opportunity to do that until now because the renal tests were unknown until a few years ago. But now we have tests which are easy to make, and it is important to use them and make observations of these patients. Bear in mind, however, that even with our functional tests we are unable at present to make accurate prognoses. We make them with a fair degree of accuracy, but that degree of accuracy is often brought about by the fact that the patients die of an intercurrent infection or of cardiac failure rather than from the kidney disease.

THE TREATMENT OF CHEST INJURIES *

MARION A. BLANKENHORN, M.D.
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The treatment of penetrating wounds of the chest early in the war was an unsatisfactory venture offering little prospects of development, but at the end was a very satisfactory procedure promising much in the improvement of its technic and the enlargement of its scope.

Methods of examination of a wounded chest are precise; and in contrast to the abdomen or head, the damage done by a foreign body can be estimated and the treatment indicated. Foreign bodies entering the chest usually continue moving in straight lines; they produce discoverable lesions and can be located accurately by the roentgen ray. With proper appliances and training, the surgeon can invade the thorax to make anatomic repairs and remove infecting foreign substances. The effect of various infecting organisms in chest wall, pleura and lungs is still the greatest unknown quantity of the problem and the one that has yielded the least to our efforts.

It is with little satisfaction that I review the statistical reports of the various surgeons in France and England, and with even less satisfaction that I inspect my own records during two summers in forward area hospitals and one winter at the base. There were no invariable concomitants—warfare and its wounds,

* Read before the Section on Practice of Medicine at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

hospitals, surgeons and surgeons' ideas changed with kaleidoscopic rapidity. It would be inaccurate history to collect and attempt to coordinate the case records made by the various surgeons in France and England, and futile to recommend anything for the future.

The generalizations dealing with the pathology of penetrating wounds of the chest, and the principles of treatment here given, constitute the lesson learned from various British and American surgeons in handling approximately 500 cases.

Chest wounds in patients coming to forward area hospitals can be divided into five main groups on a basis of their gravity and the urgency of their surgical treatment: (1) open pneumothorax, the so-called sucking wound; (2) extensive parietal wounds involving ribs and muscles; (3) large retained foreign bodies; (4) infected hemothorax, and (5) simple hemothorax.

OPEN PNEUMOTHORAX

It was apparent that there is no spontaneous cure for open pneumothorax. Anatomic repair is clearly indicated at once and is followed by almost miraculous, immediate relief. Patients who suck and blow a considerable volume of air through the wound were very uncomfortable, dyspneic and cyanotic, with a rapid, arrhythmic and irregular pulse of small volume. If untreated, they rapidly failed and died apparently from asphyxia. Simple stopping of the wound with a plug of gauze would revive a man in a few hours to the point at which he could undergo an extensive revision of his wound and closure. Patients who were so stopped up in advanced dressing stations arrived in good condition, frequently ready for immediate operation.

PARIETAL WOUNDS

Parietal wounds, penetrating or nonpenetrating, demanded the same consideration that wounds did anywhere else, with the additional reason that indriven bone fragments became a source of infection. Broken ends of ribs projecting into the chest lacerate the lungs with each respiration, and occasionally do extensive damage to the heart and pericardium. Parietal wounds of less extent are a continuous source of infection to an adjacent hemothorax. A wound that connects with the pleural space by ever so small a sinus cannot be drained externally. As long as the aspirating effect of respirations is operating, the drainage is inward as well as outward. Such wounds, therefore, must be revised and completely closed. It was found preferable to convert a parietal wound into an open pneumothorax if necessary to make a thorough revision and a good closure.

Opening the chest freely has been found to be an easy and safe surgical procedure, well tolerated by a wounded man and causing very little shock. A very necessary part of the equipment needed to do surgery of the chest is a good nitrous oxid machine and a good anesthetist. When gas is given with a close fitting face mask and made to flow at considerable pressure, the lungs do not collapse when the chest is opened, and respirations and pulse are undisturbed. Furthermore, if anatomic repair of the chest wall and lung can be accomplished, the lung continues to function normally after operation.

RETAINED FOREIGN BODIES

Retained foreign bodies are dangerous as a source of infection and of mechanical erosion of large vessels. Bullets and shrapnel balls that have not been deformed by impact with the soldier's equipment or bones, especially bullets, are surprisingly harmless. Shell fragments are invariably wrapped about with bits of clothing, and if they have one diameter as great as an inch, were almost never tolerated. To prevent empyema or lung abscess, they must be removed as soon as possible. Usually a man with a large retained foreign body is unfit for immediate operation on account of hemorrhage or shock or both. If considerable hemorrhage persists, he probably will never be fit to operate; resuscitation methods were unavailing, and it was not possible to operate for hemorrhage unless the hemorrhage was from a parietal vessel. Transfusion or infusion was distinctly detrimental if there was present a large hemothorax; for it could be clearly seen that the hemothorax was rapidly made larger, and the patients died suddenly with angina. The volume of fluid free in the chest apparently crowded the heart and lungs out of function.

Rest in a warm bed with plenty of fluids and morphin, usually restored these men to a condition that would tolerate an extensive operation. Removal of the foreign body was frequently an extensive operation. It required rib resection long enough to admit the hand into the chest. The fourth or fifth rib in the axillary space was best. The entire lung and chest could then be explored. The lung could be delivered down to the resection wound, and the foreign body with its pieces of clothing removed. If it was removed through healthy pleura, the pleura had to be sutured. If the foreign body was removed through a field of carnified lung, caused by the wound, it was usually unnecessary to make any closure or hemostasis, for this was quite well established by the process of carnification. How much should and can be done to carnified lung is a much disputed point. To me it was apparent that after gross contamination and necrotic tissue were removed, the less done the better. It was surprising how well such operations were tolerated, especially when done with gas given under pressure. Even the process of pulling on the lung caused very little change in blood pressure, pulse or respirations. After extensive lung injury and lung surgery, it was frequently impossible to maintain such a lung distended by the gas machine during operation or after closure; but gas pressure did prevent collapse of the sound lung during the operation, and prevented any disturbance of the heart and mediastinal vessels. Also it was not essential to a patient's well-being to have the wounded lung fully expanded after operation. In fact, it was thought by many that the lung should be kept collapsed and at rest after injury. But to accomplish this, collections of air or fluid in the pleural space was necessary, which introduced a new difficulty. One ingenious American surgeon accomplished partial collapse and rest by paralyzing the diaphragm with an injection of procain in the phrenic trunk, which was a rational and satisfactory procedure. Accumulations of blood were removed by pumping off the fluid and picking or wiping out all clot. The original wound of entry was revised, and when possible both wounds were closed tightly.

Infection of the pleural sinus was the greatest foe to the man who survived his anatomic injury. It was a surprise to all who observed it how able the pleural membranes are to combat infection. In all cases, whether operation was or was not performed, the

degree of contamination must have been very great, for gross dirt could be seen and removed; but these very chests could frequently be closed and occasionally remain closed with no other help than aspiration. Pleural membranes combat infection best when in their natural position and condition. For this reason, it is essential to prevent accumulations of air or fluid.

After operation and closure, serous exudates appeared which had to be tapped. Sometimes aspiration, two or three times repeated, finished the course of treatment. In others, the fluid continued to reaccumulate and finally became purulent; but by this time the lung had become adherent to the chest wall in its upper portions, and we then had a small empyema cavity localized at the base of the chest. Stitches were removed from the resection wound, and drainage was easily accomplished. Introducing air or antiseptic solutions into the pleura to keep the lung at rest puts the pleural membranes at a disadvantage, and infection is invariably more severe.

HEMOTHORAX

The remaining two groups, infected and uninfected hemothorax, were at first indistinguishable and were managed alike. The degree of contamination and the amount of free fluid are the principal determining factors. The bacteriology of these infections, like the bacteriology of other wounds, is unsatisfactory and incomplete, providing help for some cases but rules for none. Each case must be judged individually and then chiefly on clinical evidence, temperature and pulse being of the greatest help to determine when a hemothorax is infected and drainage is necessary. Streptococci and gas-forming organisms, when found in specimen fluids, invariably foretold or indicated drainage; but even these organisms were known to have disappeared from a pleural cavity after one or two tappings.

It was a practice in forward areas to hold all uncomplicated hemothorax cases when possible for observation, and after three days if there was only moderate fever and specimens showed no growth to evacuate the patient down to the base. It was observed that infections sometimes lay dormant for much longer periods than three days. Presumably the blood retarded the growth of organisms, or colonies were included in the clot and had to digest their way out into the fluid. The natural culture medium in such condition is the hemorrhagic fluid, and the resistance to infection is at the pleural membrane. It was best, therefore, to reduce the medium and increase the resistance relatively by tapping off fluid and keeping it tapped off. It was seldom that hemorrhage was lighted up by tapping, and it was quite certain that empyema was prevented and sometimes cured by tapping. Occasionally, clot interfered with tapping, and the convalescence of such an individual was much prolonged. Usually almost the entire volume could be drawn off as a fluid which would not clot. In every case in which I have seen operation performed, clot either of whole blood or of almost pure fibrin has been found, so that it is my opinion that clot forms in all cases, but that defibrination is accomplished occasionally by some means.

Many uninfected hemothorax patients made rapid and complete recovery without any interference whatsoever.

Infected hemothorax must as a rule be drained freely; but drainage which causes complete collapse of a lung with the formation of a large cavity is very undesirable, for the collapsed lung frequently remains collapsed and the patient dies from a prolonged pyogenic infection of a large area of pleural membrane.

If free drainage can be delayed by repeated tappings until the partly expanded lung has established adhesions to the chest wall and only a small cavity is formed, the results are uniformly good. But there are certain cases, mostly when streptococci and gas-forming organisms are present, that become very septic and require drainage at once. Here a closed system of drainage by air-tight tubes and suction expands the lung, and provides the necessary adhesions to obliterate the empyema cavity. Irrigations of empyema cavities were generally practiced and found to be of considerable value—mostly to remove mechanically the accumulations of pus and clotted blood, and to diminish the number of organisms present.

Patients with free drainage usually did very well and could be evacuated to the base.

By the time patients arrived at the base in France, they had progressed to a stage that determined them either as having or not having empyema, provided medical lines of communication were normal. Frequently they were abnormal, and then all preconceived plans of management had to be revised, usually much to the detriment of patients.

For cases without drainage, the management at the base was much the same as in forward areas.

For cases with drainage, the management was much the same as practiced in civil surgery, except that in some cases empyema cavities were treated by the Carrel-Dakin method and closed very promptly, frequently with very good results.

I had little opportunity to see patients treated by this plan, for it was done chiefly by the French or in England.

ABSTRACT OF DISCUSSION

DR. ERNEST ZUEBLIN, Cincinnati: I am very much interested in Dr. Blankenhorn's paper, particularly from the standpoint of ordinary civil medicine. I would like to ask the doctor about the frequency of bilateral hemothorax, pneumothorax or hydrothorax. In a recent communication published in THE JOURNAL of the American Medical Association, Captain Green makes the statement that contrary to leading conceptions the simultaneous tapping of both pleural cavities is attended by hardly any harmful consequences. Of course, this is very important, and I would like to know whether Dr. Blankenhorn's experience along this line confirms such a view. Also of practical interest would be the recommended irrigation of the pleural cavity in case of empyema. I am curious to know what solution military surgeons advocate, particularly if two cannulas are introduced, one above and one below, in order to provide for a proper elimination and a clearing up of the purulent fluid.

DR. MARION A. BLANKENHORN, Cleveland: In reply to Dr. Zueblin's question about double pneumothorax, I have seen quite a few cases of double pneumothorax, but, of course, not double open pneumothorax. Closed pneumothorax was almost always the rule in chest wounds. What I might say about double hemothorax would explain double pneumothorax. Bullets frequently traversed both chest cavities, producing double pneumothorax and large or smaller double hemothorax, and if infection did not follow, the results were quite good. As to irrigations: We were using irrigations principally for mechanical reasons, and we used the surgical solution of chlorinated soda mainly. This solution dissolves fibrin from the pleural membrane and dissolves fibrin away from the opening of the tube into the wound, and we thought

we were able to get rid of the original hemothorax more quickly by that process. Also, if organisms of putrefaction occurred, the odor was very promptly diminished, and we were also sure that the number of organisms was kept down. The plan of the management followed was to lay tubes along the walls of empyema cavities and give them routine irrigations, and when the bacterial count fell to a certain figure, close those cavities. I have not seen the statistics of those methods. Others have reported that if they did close in the presence of impending empyema, they would have to reopen, but if closure restored the normal condition to allow absorption of air and expansion of the lung, then they would have a smaller empyema. Frequently they would close and reopen a number of times. They considered this a much better method than to make no effort to expand the collapsed lung. The whole treatment was designed to obliterate the pleural sinus.

PERICARDITIS AS A COMPLICATION IN PNEUMONIA

BASED ON THREE HUNDRED NECROPSIES*

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TOLEDO, OHIO

Records of 300 necropsies on pneumonia patients from the Medical Service of the U. S. Army base hospital at Fort Riley, Kan., are available for the purpose of this study. Among this number, pericarditis was found to have occurred in seventy-two, or 24 per cent. The types of pericarditis, as a complication in pneumonia encountered at necropsy, are shown in Table 1.

TABLE 1.—TYPES OF PERICARDITIS IN PNEUMONIA

	Number	Per Cent.
Acute serofibrinous pericarditis	14	19.4
Acute purulent pericarditis	44	61.1
Subacute fibrinoplastic and purulent pericarditis ("shaggy heart")	14	19.4
Total	72	

In addition, hydropericardium, without apparent inflammatory change, had occurred in twelve instances, or 4 per cent. Empyema was present in sixty-three of the seventy-two instances of pericarditis, or 87.5 per cent.

ACUTE SEROFIBRINOUS PERICARDITIS

In approximately 5 per cent. of the pneumonia patients on whom necropsy was performed, acute serofibrinous pericarditis had occurred. Among the fourteen instances, lobar pneumonia had occurred in eleven, and bilateral bronchopneumonia had occurred in three. This form of pericarditis was characterized by the presence of a flaky pericardial fluid, which was cloudy in appearance and which contained strings of fibrin adherent to the epicardium and pericardium. The quantity of fluid varied from 250 to 1,000 c.c.

ACUTE PURULENT PERICARDITIS

In approximately 15 per cent. of the pneumonia patients on whom necropsy was performed, acute purulent pericarditis had occurred. Among the forty-four instances, lobar pneumonia had occurred in thirty, bronchopneumonia had occurred in eleven, while a combined form of lobar and bronchopneumonia had occurred in three. The amount of pus in the pericardium varied from 100 to 1,000 c.c.; the average in twenty-six instances in which the amount was recorded was 350 c.c.

SUBACUTE FIBRINOPLASTIC AND PURULENT PERICARDITIS

In approximately 5 per cent. of the pneumonia patients on whom necropsy was performed, the subacute form of pericarditis, characterized by a fibrinoplastic or villose and purulent exudate, had occurred, leading to the pathologic picture of the "shaggy heart" or cor villosum. Among the fourteen instances, lobar pneumonia had occurred in eight, and bronchopneumonia in six. The pericardium in all instances was lined by a partly organized villose exudate adherent to the epicardium. The amount of free purulent fluid usually associated with the fibrinoplastic exudate varied from 15 c.c. to 600 c.c., the average being about 250 c.c.

In Table 2 is shown the extent of the associated pneumonia incident to the three types of pericarditis.

TABLE 2.—PERICARDITIS AND THE EXTENT OF THE ASSOCIATED PNEUMONIA

		Pneumonia					
		Both Lungs		Right Lung		Left Lung	
	No.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Acute serofibrinous pericarditis	14	7	50.0	4	28.6	3	21.4
Acute purulent pericarditis	44	21	47.7	9	20.4	14	31.8
Subacute fibrinoplastic and purulent pericarditis	14	5	35.7	5	35.7	4	28.6
Total	72	33	45.8	18	25.0	21	29.1

The importance of empyema as an associated complication in the pericarditis of pneumonia is shown in Table 3.

TABLE 3.—EMPYEMA AND PERICARDITIS IN PNEUMONIA

		Empyema					
		Bilateral		Right		Left	
	No.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Acute serofibrinous pericarditis	14	4	28.6	5	35.7	1	7.1
Acute purulent pericarditis	44	8	18.2	9	20.4	24	54.5
Subacute fibrinoplastic and purulent pericarditis	14	5	35.7	3	21.4	4	28.6
Total	72	17	23.6	17	23.6	29	40.3

TYPES OF INFECTION

A large proportion of the types of the pneumonia encountered were due to mixed infection by pneumococcus and streptococcus (usually one of the hemolytic varieties). When complications occurred in pneumonia, the predominating infection encountered was usually a hemolytic streptococcus; that is, 72.5 per cent. of 251 empyemas, in which the infection was known, were due to the streptococcus, while 27.5 per cent. were due to the pneumococcus. Such was the relative proportion also in pericarditis. In 75 per cent. of the cases, the cultures revealed hemolytic streptococci. In general, the type of infection corresponded to the type isolated from the pleural fluid.

COMMENT

In Table 2 it will be noticed that in seventy-two instances of pericarditis, both lungs were involved in the preceding or accompanying pneumonia in 45.8 per cent., while the left lung was involved in 29.1 per cent. and the right lung in 25 per cent. McPhedran[1] has

* Read before the Section on Practice of Medicine at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. McPhedran, Alexander: Diseases of the Pericardium, in Osler: Modern Medicine, Philadelphia, Lea & Febiger 4: 41, 1908.

mentioned thirty-one cases of pericarditis from Osler's service at the Johns Hopkins Hospital, and has stated that both lungs had been affected in 41.9 per cent., the right lung in 41.9 per cent., and the left lung in 16.1 per cent. From these figures, and from the experience of himself and others, he concluded that pericarditis occurred more frequently in association with affections of the right lung than of the left. This has not proved to be the case in the series here reported, which showed an almost equal proportion for the two lungs.

The most important factor in the development of pericarditis appeared to be the occurrence of empyema. Reference to Table 3 discloses the fact that pericarditis, especially the acute purulent form, occurred more frequently with empyema of the left pleural cavity (54.5 per cent. with left empyema, and 20.4 per cent. with right empyema). For all three forms of pericarditis described, it will be seen that this complication occurred with left empyema in 40.3 per cent., and with right empyema in 23.6 per cent. Pericarditis occurred more frequently in association with left empyema than with bilateral empyema. This may be explained by the fact that the development of empyema on the right side occurred, in a number of instances, as a late complication subsequent to the empyema on the left side. Pericarditis was one of the principal causes of death in empyema. Among forty-eight empyema patients who died subsequent to operation, extensive pericarditis, usually of the purulent form, was present in fifteen, or 31.2 per cent., while among 100 empyema patients who died without operation, pericarditis, usually of the purulent form, was present in 46 per cent.

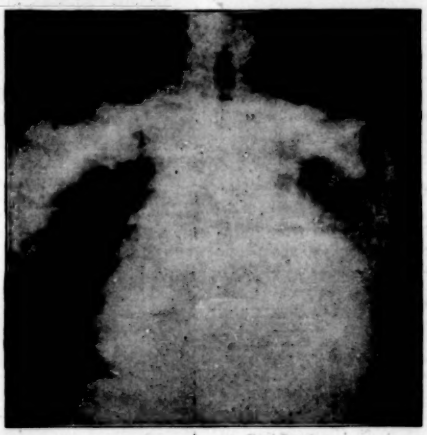

Fig. 1.—Pericarditis following pneumonia. Three aspirations of serofibrinous fluid. Recovery.

DIAGNOSIS

In the diagnosis of pericarditis, the clinical sign of greatest importance was a to and fro friction sound, not transmitted beyond a limited area, which was usually first heard over the base of the heart or in the fourth or fifth interspace close to the sternum, and which was practically synchronous with the heart beat. It possessed a distinct rubbing quality, not unlike but less perceptible than a pleural friction sound. The fremitus of the rub could in some cases be detected by palpation. Its duration was transitory if effusion occurred rapidly, when the heart tones became distant or muffled, and obliteration of the cardiac impulse occurred. The differentiation of the pericardial friction sound from a pleural or pleuropericardial friction rub, in a patient with dyspnea due to pneumonia, empyema or a partially collapsed lung, was a matter of great difficulty in numerous instances. In some patients, the friction rub could best be heard below the angle of the left scapula, because of the transmission through a portion of consolidated lung. The heart was in some instances distinctly rotated on its long axis toward the posterior chest wall, because of mediastinal adhesions arising from earlier mediastinitis. With effusion into the pericardium, the area of heart dulness increased to the right beyond the sternum, and to the anterior axillary line on the left. With marked effusion reaching 500 to 800 c.c., the area of dulness occupied a large portion of the left anterolateral chest wall. This area of dulness was often confusing if associated with the presence of fluid in the left pleural cavity. The roentgenogram was of great assistance in confirming the diagnosis of pericardial effusion in patients with increased area of heart dulness and with muffled heart tones, who also had walled-off fluid in the left lateral pleural cavity.

With marked distention of the pericardium, the veins of the neck distended, and in some instances a positive venous pulse in these vessels was evident, owing to the overfilled right auricle. At necropsy, dilatation of the right side of the heart was frequently mentioned in the necropsy notes. The myocardial changes, viewed microscopically, consisted of cloudy swelling and fatty degeneration, with fragmentation of the muscle bundles.

Since pericarditis occurred, in our experience, only one-eighth as frequently in patients without empyema as in patients with empyema, the occurrence of a possible purulent pericarditis was suspected in every empyema patient who presented, after pleural aspiration or drainage operation, a rapid pulse and a septic type of temperature. Dyspnea was so common a symptom in patients with an extensive pathologic condition of the chest associated with empyema that, by itself, little reliance could be placed on it.

In the diagnosis of small amounts of purulent material in the pericardium, the clinical signs were in numerous instances untrustworthy, and the roentgenograms of little assistance. It was not at all uncommon to see at necropsy the normal amount of pericardial fluid replaced with thin fibrinopurulent fluid. If the process had existed a number of days, as judged by the clinical history, fibrin organization had taken place in some instances, with firm villose adhesions between pericardium and epicardium, producing the pathologic picture of the "shaggy heart." There was usually a small amount of unorganized, thin pus in the pericardial cavity. This form of pericarditis was undoubtedly such from the beginning. In the presence of an empyema the condition appeared to have resulted from an extension by contiguity to the pericardium. In only two of the forty-four instances of purulent pericarditis did empyema not exist as an associated or antecedent condition, and in one of these a fibrinoplastic pleuritis

was present, cultures from which revealed streptococcus infection.

The infection either reached the pericardium through the lymphatic vessels draining the parietal pleura, or

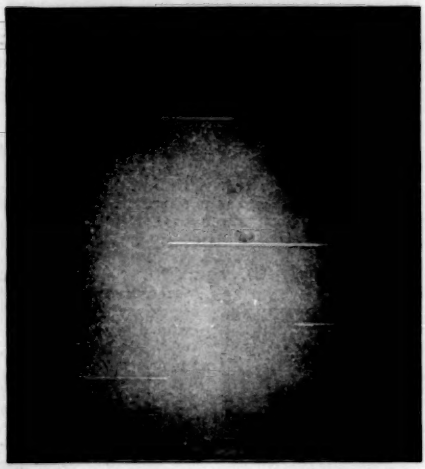

Fig. 2.—Hemorrhagic pericardial effusion following tuberculous pneumonia.

extension occurred by contiguity of tissue from purulent accumulations beneath the sternum, which we have described as subcostosternal pus pockets, or from walled-off pockets occupying the left anterolateral portion of the chest cavity. In many of the patients with purulent pericarditis, the area of heart dulness was not increased by percussion, nor did the roentgenogram show cardiac enlargement, since distention of the pericardium had not taken place. There had merely been a change from a serous to a purulent fluid in the sac, with a subsequent partial organization of the exudate. The distant or muffled heart tones characteristic of considerably increased fluid in the pericardium could not be relied on for the diagnosis of the condition in such instances. A left-sided, closed pneumothorax, with collapse of the lung and retraction of the heart by adhesions toward the posterior chest wall, so muffled the heart tones in some patients as to lead to suspicion of pericardial effusion, when such a condition did not exist. A hemorrhagic pericardial fluid was obtained on aspiration in but one patient, who had undoubted tuberculosis with tuberculous pericarditis.

TREATMENT

Since a large proportion of the deaths in this series occurred in patients with an extensive pathologic condition of the chest due to empyema, it was impossible to consider any more radical procedure than paracentesis in dealing with pericardial effusion, whether serous or purulent. In the acute, purulent form, as well as in the subacute fibrinoplastic and purulent form in which, in many instances, distention of the pericardium had not taken place, little could be expected from paracentesis or, for that matter, from free incision and drainage, because of the presence of the associated pulmonary and pleural pathology.

Pericarditis occurred as an early and as a late complication in pneumonia. As an early complication it was found at necropsy in patients who so quickly succumbed to a rapidly spreading pneumonia with empyema that the presence of pericarditis was unsuspected. As a late complication it occurred subsequent to operation for the relief of empyema. In not one instance among 275 operations for empyema was purulent pericarditis recognized, or believed to be coexistent with the empyema at the time of operation. It was many times suspected, but on evidence insufficient in the presence of pleural sepsis to warrant radical exploration of the pericardium. Subsequent events proved the wisdom of conservatism in the method adopted. In a strict sense, pericarditis developed, as did nephritis, subsequent to empyema and, as such, contributed largely as a cause of death in empyema, in many instances weeks after pleural drainage was established. If one might be so fortunate as to recognize purulent pericarditis coexistent with or subsequent to empyema, and the condition of the patient was such as to warrant further interference, free incision and drainage of the pericardium would be indicated. It has not fallen to my lot to be placed in such a position.

In performing paracentesis pericardii, local anesthesia of the skin and the deeper tissues was employed. Two points of election were available: A point outside the nipple, in the left fourth interspace, was the first selected. If the needle was inserted in an inward and backward direction toward the spine, keeping within the area of dulness and assisted by the roentgenogram shadow, there appeared to be little danger of puncturing the myocardium of the right ventricle, which occu-

Fig. 3.—Pericardial effusion and left encapsulated empyema. Operative Series II, No. 3. Recovery.

pied the greater portion of the heart surface proximal to the chest wall. The other point selected was immediately beneath the costal margin, in the narrow angle formed by it and the xiphoid cartilage on the left side. This point was available only if the diaphragm on the

left side was in normal position. In many patients with empyema, the diaphragm was higher than normal on the affected side. In inserting the needle for aspiration at this point, it should be inclined so as to hug the under surface of the costal cartilage, and be pointed slightly to the left toward the nipple until it enters the pericardium.

A fairly good sized needle for attachment to the aspirating syringe should be selected. For persons with thick chest walls, the needle should be about 3½ inches long. When the point of the needle touched the myocardium, a distinct thrust, due to the cardiac systole, was evident.

In the treatment of pericarditis, the ice bag and morphin were used to control pain. Antistreptococcus serum, injected intravenously in from 50 to 100 c.c. daily doses, was used to combat the general sepsis in patients with streptococcus infection. Serums known to agglutinate, in dilutions of from 1:60 to 1:80, the strains of streptococci encountered, were used so far as possible. It is possible that recovery in some instances of empyema sepsis, with which suspected pericarditis was associated, was secured through its use.

SUMMARY

1. Pericarditis was found to have occurred in seventy-two, or 24 per cent., of 300 patients who succumbed to pneumonia.

2. Acute purulent pericarditis occurred in 61.1 per cent. of the seventy-two instances, acute serofibrinous pericarditis in 19.4 per cent., while the subacute fibrinoplastic and purulent form producing the "shaggy heart" occurred in 19.4 per cent.

3. The quantity of pericardial fluid present in acute serofibrinous pericarditis varied from 250 to 1,000 c.c. With this form, pneumonia of both lungs was present in 50 per cent. of the patients, of the right lung alone in 28.6 per cent., and of the left lung alone in 21.4 per cent.

4. In acute purulent pericarditis, the quantity of pus in the pericardium varied from 100 to 1,000 c.c. The average in twenty-six instances in which the amount was recorded was 350 c.c. Pneumonia involving both lungs had occurred in 47.7 per cent. of the cases, involving the left lung alone in 31.8 per cent., while in 20.4 per cent. the right lung was alone involved. In 54.5 per cent. of these instances, empyema of the left pleural cavity was present.

5. In the subacute form of fibrinoplastic and purulent pericarditis, producing the so-called "shaggy heart," pneumonia of both lungs had occurred in 35.7 per cent. of the cases, of the right lung in 35.7 per cent., and of the left lung in 28.6 per cent. Bilateral empyema had occurred in 35.7 per cent. of these instances, right empyema in 21.4 per cent., and left empyema in 28.6 per cent.

6. The type of infection isolated from the pericardial fluid corresponded generally to the type of infection isolated from the pleural fluid. In about 75 per cent. of the patients streptococcus infection (usually one of the hemolytic varieties) was present.

7. The most important factor in the development of pericarditis appeared to be the occurrence of empyema. Pericarditis appeared to have resulted by contiguous extension from an empyema in many instances. Pericarditis and the associated myocardial changes were important contributory causes of death in empyema, both prior to and subsequent to operation.

8. In the diagnosis of pericardial effusion in amounts varying from 300 to 500 c.c., the physical signs and the roentgenograms were fairly dependable, despite the extensive, associated pathologic condition which confused the picture. In the diagnosis of smaller amounts (from 10 to 150 c.c.) of purulent material in the pericardium, the clinical signs were untrustworthy and the roentgenograms of little assistance.

9. Paracentesis of the pericardium was an important diagnostic and prognostic procedure. In acute serofibrinous pericarditis with large effusion, aspiration of the fluid was an important means of securing relief for the cardiac embarrassment.

10. The more radical procedure of incision and drainage of the pericardium in purulent pericarditis was not considered advisable in any of these patients, in which the condition was suspected, because of the extensive, associated pathologic condition.

217 Nasby Building.

Fig. 4.—Purulent pericarditis with rotation of heart toward posterior chest wall, due to adhesive mediastinitis. Five aspirations. Recovery, but with marked disability.

ABSTRACT OF DISCUSSION

DR. CHARLES SPENCER WILLIAMSON, Chicago: Just before the entrance of the United States into the war I was engaged in the experimental study of pericarditis and to this end injected gelatin agar mixtures into the pericardial cavity of thirty-three fresh cadavers, and then made casts from them. These casts were exhibited at the New York meeting of the American Medical Association in the scientific exhibit. To one of these cases I wish to refer since it was a unique opportunity. A patient with an upper lobe pneumonia developed a pericardial rub and shortly afterward we made the diagnosis of fluid being present. The following day, hearing that the patient was rapidly growing worse, I went to the hospital and found him with a very rapid, weak pulse and in a dying condition. Before we could make plans to aspirate the patient died. A few minutes after death I made a small incision in the costoxiphoid angle, inserted a long needle and aspirated 270 c.c. of turbid fluid containing pneumococci. I immediately injected exactly the same amount of gelatin agar solution and twenty-four hours later removed the pericardium en masse. This was frozen and a cast and model made. The size of the exudate as measured on the model was 405 c.c. The important point is that even with

this small exudate the great veins and the auricles were absolutely flattened. Practically we had a repetition of the animal experiments of Francois, Franck and Starling. The fluid had accumulated so rapidly that the pericardium did not distend sufficiently and in my judgment the patient died from the mechanical interference of the circulation due to pressure on the auricles. The important therapeutic indication is to remember that when an effusoin is poured out rapidly the condition of the patient may suddenly become alarming and aspiration of even a very small quantity of fluid may be lifesaving. In other words, a small effusion accumulating rapidly may kill the patient where a large effusion accumulating slowly may be well borne.

Dr. C. F. Hoover, Cleveland: Paracentesis may be done for relief of infection of the pericardium or for relief from pressure within the pericardial sac. Whenever there is a question of performing paracentesis for the relief of pressure within the pericardial sac I am guided by the movements of the costal borders from the subcostal angle to the eighth rib. When the subcardial part of the diaphragm is flattened there will be inspiratory narrowing of the subcostal angle. If the subcardial portion of the diaphragm is not flattened then there will be no need of relieving the pericardial pressure. Another sign I have found very valuable in estimating the need of paracentesis of the pericardial sac is pallor of the lips. When the circulation is failing on account of pressure in the sac the lips are pale and the pulse small. Pallor of the lips is not caused by failing circulation when the myocardium is at fault. Distension of the pericardial sac causes greater hepatic displacement than any other intrathoracic disease. The liver is rotated downward on a transverse axis which is located at that part of the liver not covered with peritoneum. Seven hundred cubic centimeters of fluid in the sac was sufficient on one occasion to rotate the liver downward until the lower border was in the iliac fossa.

Dr. William H. Robey, Jr., Boston: I have been very much interested in the remarks of the speakers, especially in what Dr. Hoover said, because I think that any light which can be thrown on the diagnosis of fibrinous, serous or purulent pericarditis is of great value. I have noted in the plates which Dr. Stone showed that the cardiohepatic angle was not obtuse. It is more often obtuse in large serous effusions than in small purulent ones. I do not think it is the opinion of observers that relatively large amounts of fluid in the pericardial sac produce signs of pressure. It is only when the fluid is first forming before the distensible pericardial sac has accommodated itself to the increased pressure or when the amount is very large that there are signs of discomfort. At the meeting last year Dr. Christian reported some interesting cases of posterior accumulations of fluid which caused signs of compression of the left lung within the angle of the scapula, known as "Ewing's sign." I recently saw in France a case with thirty-two ounces of pus in the sac and because the cardiac impulse was perfectly distinct the surgeons would not believe that the pus came from the pericardial sac even after operation. In another case with pericardial rub followed by increasing cardiac area, Ewing's sign was present. There was a dry tap and at the necropsy the pericardial surfaces were adherent. Ewing's sign failed in this instance. I notice that Dr. Stone and some others caution physicians not to puncture the heart wall in aspiration. I have often gone into the heart wall and have never seen it do any harm. In looking through the literature I have found only one case where the patient bled to death because the needle entered the ventricle. Indeed, in small amounts of fluid, the pericardial space being purely potential it is almost impossible not to strike the heart wall. One of my friends told me that he has given immediate relief to cases of marked cyanosis and dyspnea by aspirating the embarrassed heart and has never seen anything but good come from the operation.

Dr. Henry Sewall, Denver: A pericardial effusion may affect the welfare of the individual in two ways, namely, through the quality of the fluid, its infectiveness, or through its amount. A noninfective effusion works its harm by preventing full diastolic distension of the heart. The restraint thus offered depends on the relation of two factors, namely, volume of the fluid and capacity of the pericardial sac. The latter factor is itself variable but data on the conditions of pericardial distensibility seem to be wanting. It is conceivable that a pericardial effusion of moderate amount may cause sudden death by pressure on the great veins entering the right auricle while the patient lies on his back. In such a case the obstructive pressure might presumably be relieved by turning the patient on his face. Some of the speakers are to be congratulated on their immunity from harm in puncturing the heart itself during paracentesis. It seems to be a question of luck. I recall a case of cardiovascular disease in which the left pleural cavity was tapped by a well known surgeon for removal of serous exudate. The patient died in a few hours; the necropsy disclosed a pericardial sac distended with blood. The aspirating needle had cut into a superficial coronary vessel on the left ventricle and the patient bled to death into her pericardium. We all remember Kronecker's demonstration of the localized coordinating center in the middle of the anterior surface of the right ventricle, irritation of which, in the dog, produced fibrillation of the heart.

Dr. Willard J. Stone, Toledo, Ohio: I have never seen displacement of the liver downward in extensive pericardial effusions because practically all of our cases, at least seven-eighths of them, were associated with empyema in which high fixation of the diaphragm had occurred on the affected side. Such high fixation would operate to prevent downward displacement of the liver if associated with rightsided empyema. In connection with the description which Dr. Robey mentioned of Dr. Christian's paper last year before this section, one of the plates this morning showed a distinct rotation of the heart toward the posterior chest wall. In that case the signs of effusion and dulness were very marked in the back. We have believed in such cases that an adhesive mediastinopericarditis had occurred which had caused rotation of the heart toward the posterior chest wall accounting for the physical signs which were found in the back. These signs were accentuated if transmitted through a portion of contiguous consolidated lung. I do not believe that the sign described by Ewing is of any great significance in connection with pericarditis, except as it explains the associated chest pathology. I am sure, in doing paracentesis of the pericardium, that I have punctured the ventricle of the heart a number of times. I do not know that any particular harm has followed the incident, but believe, of course, that it is just as well to avoid puncturing the ventricle if it is possible to do so. To carry a needle through a thickened septic pericardial membrane, through the ventricle and into the blood stream is hardly a very desirable surgical procedure. If one uses the roentgenogram as a guide and keeps within the area of heart dulness, a point to the left, below and just outside the nipple, is on the whole the most satisfactory point for aspiration. The angle between the xiphoid and the left costal border was rarely available in our series because of the high diaphragm associated with empyema. I should like to ask Dr. Robey if he has ever seen any harm come from puncturing the ventricle in pericardial paracentesis.

Dr. William H. Robey, Jr.: Not in my experience or in that of my friends, and I have found but one case in the literature where any harm seemed to have come from it.

Deaths from Disease and War in Great Britain.—The statement that the devastations produced by disease in times of peace are even greater than the loss of life from war may be illustrated by the experience of England and Wales. In the four years, 1911-1914, immediately preceeding the world war, 2,036,466 persons died in England and Wales, while, according to official figures, the total loss of men during the four and one-fourth years of war was 835,743, including 161,800 presumed dead. The war figures give the entire loss for the British empire; but it cannot be far from the truth to state that war on the gigantic scale of the war from which we have just emerged has killed in Great Britain about one-third as many as have died in the civilian population in a corresponding period.

HYPERTROPHIC PULMONARY OSTEO-ARTHROPATHY (BAMBERGER-MARIE DISEASE)

REPORT OF A CASE FOLLOWING LUNG ABSCESS *

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WITH ROENTGENOGRAMS BY

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In the surgical service of the U. S. Army Base Hospital at Fort Sam Houston, Texas, I became deeply interested in a case of draining lung abscess associated with enormous enlargement of the hands and feet, with ossifying periostitis of certain long bones and with fluid in the knee joints, evidently a case of subacute infectious osteo-arthritis.

REPORT OF CASE

Clinical Picture.—March 20, 1919, I found a young man having the appearance of a chronic invalid, but he was not confined to bed. He was rather pale and slightly emaciated. His facial expression was listless and dejected. Speech and mentality were rather slow. He had a chronic cough which occurred in paroxysms with the production of moderate amounts of thick, tenacious, mucopurulent sputum, at times streaked with blood, with a musty but not offensive odor. Most striking was the enlargement of the hands and feet, the hands resembling huge, clumsy paws. The wrists were enlarged after the manner of the hands. The fingers were generally thickened and sausage-shaped, but were not "clubbed"; indeed, the greatest enlargement was over the proximal interphalangeal joint. The finger nails were large, square and flat, smooth and without any of the curving seen in "simple clubbed fingers"; the large nails were only in proportion with the huge fingers. The elbows were slightly enlarged. The feet and toes were correspondingly enlarged, and there was moderate edema of the legs, with pitting on pressure. The knees were markedly swollen and contained fluid. There was slight tenderness to pressure over the

Fig. 1.—Condition of the hands.

affected bones and joints, but there was no redness. The bones of the skull and the face did not appear to be affected. From the surgical wound over the ninth rib in the posterior scapular line, there was slight purulent drainage, and examination revealed that the sinus communicated with a bronchus. In walking, the gait was clumsy and shuffling; the head was held slightly forward and the shoulders drooped, but no kyphosis nor scoliosis was detected.

* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of certain paragraphs and illustrations. It will appear in full in the author's reprints.

History.—B. M. W., aged 24, first lieutenant, Flying Detachment Air Service, was admitted, Aug. 1, 1918, to the base hospital.

Family history: His father was alive, aged 54. He had had glycosuria for one year. His mother was alive and well, aged 43. All brothers and a sister were alive and well. There was no history of tuberculosis or cancer.

Personal history: The patient had had measles and mumps in infancy, and scarlatina at the age of 6. He gave a vague history of "rheumatism," saying that his feet had

Fig. 2.—Appearance of the feet of patient in November, 1918.

been swollen at times, but he was never confined to bed on this account. He had had occasional colds, but had never had tonsillitis until December, 1917. He had had no other illnesses. He stated that he had had no venereal disease.

Present illness: In December, 1917, while on duty with the Flying Corps, he "caught cold" and had tonsillitis. He was advised to have the tonsils removed.

Jan. 8, 1918, tonsillectomy was performed under ether anesthesia, in Philadelphia. He remained in the hospital only twenty-four hours. A few days later he developed a cough and pain in the left chest, at times referred to the left side of his abdomen.

February 1, he took to his bed and remained there for three weeks, suffering from what his physician called "pleurisy" of the left chest.

His cough persisted for about ten weeks.

March 19, he reported for duty at Kelly Field No. 2, Texas, and began flying. About this time his cough left him and he says that it did not return until after an accident in May in an aeroplane.

May 29, his aeroplane dropped from a height of 700 feet, but he was not seriously injured; he did not lose consciousness, but he was bruised and considerably shaken up. His chin was lacerated and his upper central incisor tooth was knocked out. This tooth was not found, and he wonders whether he may have "aspirated" it. There was no roentgenologic evidence that such was the case. No bones were fractured, and he remained in the hospital for only four days, reporting for duty on the sixth day after the accident.

His cough returned, and except for short remissions has persisted up to the present time. After his fall he was not again permitted to fly and was soon given a sick leave for a month.

About July 20, on his return from sick leave, he first noticed "swelling of his feet and toes"; his cough was troublesome, and he was sleepless and easily tired on exertion. The legs and feet felt heavy, weak and stiff as if they had been "jambed."

August 1, he entered the base hospital at Fort Sam Houston where he has remained up to the present time.

About August 15, the hands began to enlarge rapidly, attaining their maximum size (so far) within a couple of weeks. The paroxysmal cough, especially on lying down at night, caused violent frontal headache and insomnia. The headaches lasted only for a few weeks, and there have been none during the past six months; but the sleeplessness has persisted and is still a distressing feature despite the use of sedatives.

Clinical Course.—During August, there were slight rises of temperature during the afternoon, the maximum being 100 F., but usually about 99.4. The pulse ran between 98 and 108. There was much cough, sleeplessness, nervous irritability and depression of spirits.

Weight on admission was 133 pounds, which was about normal.

The physical and the roentgenologic examinations pointed to an involvement of the left lower lobe of the lungs. The heart was normal. The systolic blood pressure was 114. The enlargement of the hands and feet was as described above. The epitrochlear nodes were enlarged. Otherwise the physical examination was not significant.

Blood Wassermann tests were negative, August 6 and 9, and September 6.

The sputum was negative for tuberculosis in approximately twenty examinations.

Repeated examinations of the urine disclosed no albumin, no sugar and no casts. The specific gravity averaged from 1.009 to 1.020.

Blood examination, Aug. 2, 1918, revealed red blood cells, 4,740,000; hemoglobin, 70 per cent.; leukocytes, 11,200; polymorphonuclears, 72; large mononuclears, 3; small mononuclears, 25. There was no poikilocystosis nor chromatophilia.

The feces were negative for parasites.

In September, 1918, efforts were made to locate pus which was suspected in the left chest, and several unsuccessful aspirations were made.

September 13, a small amount of thick pus was aspirated from the left chest posteriorly at a depth which seemed to indicate a lung abscess, and at once costectomy of the eighth or ninth ribs in the posterior scapular line was performed and the parietal and the visceral plura were sutured together, as the first stage of a two-stage operation for lung abscess. The operator was Major Russell.

Fig. 3.—Condition of patient, March 20, 1919.

Fig. 4.—Appearance of hands and legs, March 20, 1919.

September 17, through the costectomy wound, an abscess deep in the left lower lobe was opened with the cautery and a considerable amount of pus was evacuated and the abscess was drained.

From September, 1918, up to the present time, there has been more or less drainage of thick pus from the wound. Surgical solution of chlorinated soda (Dakin's solution) was not well borne on account of the communication with the bronchus.

At one time in February, 1919, the discharge gradually ceased and the wound closed but opened again spontaneously about sixteen days later, and discharged a bit of greenish, gangrenous tissue.

At the present time, there is still slight purulent drainage and free communication with the bronchus, namely, a chronic bronchial fistula.

During these months whenever the drainage seemed insufficient there occurred an exacerbation of the cough, mental depression and above all an increase in the size and in the aching pains along the enlarged bones and joints of the extremities, but without local heat or redness.

In January, 1919, the knees became more swollen and filled with fluid.

The treatment during this time has been surgical care of the wound in the chest, symptomatic treatment for the pains and the insomnia, and during December, 1918, the injection of an autogenous vaccine prepared from the pus.

This vaccine contained *Staphylococcus albus*, and a gram-negative typhosus-like bacillus. No effect was noted from its use.

The sputum, March 4, 1919, was thick, mucopurulent, and streaked with blood. Culture shows *Micrococcus catarrhalis* and a green-producing nonhemolytic streptococcus. There was no elastic lung tissue. The odor was musty but not very offensive.

Blood examination, March 2, revealed: red blood cells, 4,740,000; hemoglobin, 80 per cent. (?); leukocytes, 11,400; polymorphonuclears, 54; small mononuclears, 39; large mononuclears, 4, and transitionals, 3.

The systolic blood pressure was 110; the diastolic, 64.

Fluid from the left knee was aspirated, March 6. Smear and culture were negative.

Ear and throat examinations were negative.

Eye examination, March 11, 1919, revealed: vision right eye 20/20, left eye, 20/20. The media were clear. The fundi were normal. The field of vision for form was normal in extent in both eyes.

The weight was 133 pounds Aug. 1, 1918, and 122 pounds, March 15, 1919, a net loss of 11 pounds.

The height was 64 inches, June, 1917, and 64½ inches, March 18, 1919.

The thyroid gland appeared to be normal.

There has been practically a normal temperature for months with occasional elevations to 100 F. at times when the drainage has been temporarily blocked.

The pulse still averages from 96 to 104.

Summary.—There was an involvement of the left lung, probably the effect of an aspiration infection following tonsillectomy under ether. There was a chronic productive cough. There was a rapid enlargement of the feet and hands during a period of six months. A lung abscess was drained, September, 1918, with a resulting persistent, bronchial fistula. Mental depression and insomnia were present. There was a slight loss of weight. There was no evidence of syphilis or tuberculosis. The pathologic condition in the enlarged hands and feet and other regions is best revealed by the roentgenograms which show, besides the enlargement of the overlying soft parts, a definite striated production of new bone in the periosteum of the shafts of the metacarpals and the first two rows of the phalanges, also along the lower ends of the radius and ulna. The

corresponding bones of the lower end of the femur; also the clavicles and some of the ribs, are to a degree affected. The joint surfaces appear unaffected. There is fluid in the knee joints.

Negative Findings.—The fingers are not "clubbed." No pituitary or thyroid changes are present. There are no headaches, disturbance of vision nor drowsiness; on the contrary, very marked insomnia. There are no changes in face, lips or skull. There is no evidence of abnormal thirst or hunger, and there are no alterations in the special senses.

Fig. 5.—Thickening of the periosteum with irregular deposit of subperiosteal bone on metacarpals; also on proximal and middle phalanges (February, 1919).

HYPERTROPHIC PULMONARY OSTEO-ARTHROPATHY

In 1890, Marie first reported a case which he described as "osteo-arthropathie hypertrophiante pneumique," a distinct clinical entity, and yet, according to Babcock, this very case turned out later to be a case of acromegaly.

I have been unable to make a complete review of the literature, stationed as I am on military duty, but all the available authorities have been consulted and many and great are the discrepancies encountered.

From many of the articles it would appear that the writer never had seen a genuine case of this rare disease and had been obliged to draw on and still further confuse the already confused descriptions of preceding authors.

It is doubtful whether the whole literature up to the present time contains records of 100 cases; it is certainly the only case of its kind which has ever come under my observation.

One is struck by the emphasis laid on the clubbing of the fingers, which is not present in our case. We agree very heartily with Sternberg when he says that "one must suspect that many cases, so-called, are not all the same, and it is a question whether or not 'clubbed fingers' and the periosteal changes are related." Sternberg says that we see clubbed fingers without periosteal changes in the long bones, but we do not see the reverse.

In our case we cannot accept the last clause of Sternberg's statement, for we have a case with pronounced changes in the long bones and yet without "clubbing of the fingers," the fingers being very generally enlarged throughout and the nails, while proportionally large, not curved more than normal.

ETIOLOGY

The French writers were the first to attribute the origin of this rare disease to the absorption of toxins from a septic focus, usually in the lungs. This is the explanation now generally accepted; and in order of frequency the following foci have been encountered: bronchiectasis, empyema, abscess of the lung, pulmonary tuberculosis with cavity formation, toxic cirrhosis of the liver, and malignant tumors of the lung.

Sternberg mentions such other causes as pyelonephritis, dysentery, pneumonia, pleurisy, influenza, alcoholism and congenital heart disease; but Osler remarks that Sternberg must have included many doubtful cases. The tuberculosis theory is upheld by Poncet, Thorburn, Ball and Alamartine. Syphilis has also been advocated by certain French writers as the cause.

Fig. 6.—Subperiosteal bone deposits on lower ends of tibia and fibula; posterior aspect of os calcis; anterior surface of astragalus and of metatarsals (March, 1919).

Cyanosis, if it were constantly present, might be called on to explain simple clubbed fingers, but it fails utterly to account for the bone changes.

The bone and joint involvement in our case indicate conclusively that the process is a subacute infectious

osteo-arthritis, and in our case, as in the vast majority of genuine cases reported, the focus of infection is in the lungs.

PATHOLOGY

In 1906, Alexander collected seventy-seven instances from the literature which he regarded as genuine cases of this disease, and he reviews the pathology of all the cases in which complete necropsies were performed (sixteen cases).

We quote Alexander's findings almost verbatim from Osler, and the description fits our case very perfectly:

Symmetrical deposits of new subperiosteal bone on the shafts of the long bones. Most frequently affected are the lower ends of the radius and ulna, the metacarpals and the first two rows of the phalanges; more rarely the lower end of the humerus and the upper ends of the radius and ulna. The new bone begins abruptly from 4 to 5 inches above the wrist joint and forms a sheath covering the lower ends as far as the epiphyseal line. The circumference of the bone is about equally affected, the thickest deposit being at the junction of the shaft with the lower extremity of the bone. The carpal bones are not affected, but the metacarpals are ensheathed and appear uniformly enlarged. The first two rows of the phalanges are similarly affected but less than the metacarpals. The terminal phalanges are apparently unaffected.

Fig. 9.—A sheath of new bone may be seen surrounding the shafts of the tibia and fibula. The cortex and medullary canal are apparently normal (March, 1919).

Similar bones of the lower extremity are affected, especially the lower tibia, which may be thickened by a layer of new bone one quarter of an inch thick. The phalanges of the toes are less affected than those of the fingers.

Deposits have been found on the iliac crests, on the clavicles and on the anterior surface of the patellae.

The symmetrical distribution is truly remarkable.

The cortex of the bone may show sclerosis and thickening, with diminution in the size of the medullary canal. The periosteum is very vascular and thick, and the main nutrient canals are large and many additional vessels enter the compact layer.

The bone changes are due to a chronic inflammation, causing new bone formation, also to atrophy and rarefaction and, to a much less degree, to osteophyte building.

The long bones do not bend. The skull is little, if any, affected.

In many cases there is excess of fluid in the joints, wrists, ankles, knees and fingers. In these affected joints the synovial membrane shows inflammatory changes, but there are no cartilaginous changes or lipping, no eburnation nor osteophyte building.

The bone changes are only part of the process, for there is much thickening of connective tissue, especially in the vicinity of the wrists, ankles and fingers.

Barker describes the affair as a slowly ossifying periostitis and osteitis, but he states that the joints are free.

Buck[3] says that there is "an outside layer of dense, newly formed periosteal bone all along the shaft; this layer is striated and does not completely obscure the old cortical line. In pronounced cases all the bones in the body may be involved; the flat bones are thickened and there is marked kyphosis."

Fraenkel adds that it is "a true hypertrophy in consequence of periostitis, with new bone formation and at the same time a rarefaction of osseous tissue with dilatation of the natural interstices as well as increase of the medullary substance."

I make no attempt to harmonize the little discrepancies in the descriptions quoted above.

The thyroid and the pituitary glands are not altered.

TREATMENT

The treatment for the pains in the bones and joints is symptomatic. The only treatment which will logically have any effect on the progress of this race disease must be directed toward the cure or improvement of the primary focus in the lungs.

CONCLUSIONS

The history, the clinical findings and the roentgenologic findings in our case all point quite conclusively to the diagnosis of hypertrophic pulmonary osteoarthropathy, by which we mean a subacute infectious osteo-arthritis, secondary to a septic focus in the lungs. However, we must acknowledge that the roentgenogram of the skull shows an abnormally small sella turcica, and the possibility of some change in the pituitary must be admitted.

Is it possible that our case, like the first case reported by Marie, may later develop into an irregular type of acromegaly?

CONGENITAL BILATERAL STRICTURE OF THE URETER *

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If we may judge from the literature on the subject, congenital stricture of the ureter is not rare; but a *bilateral* congenital stricture of the ureter is a rare defect, only eight cases, exclusive of the one here recorded, having been described. From the few cases recorded it would appear that these strictures are most often discovered at the extremes of life, most of them having become evident before the age of 5 years. Two cases have occurred in adults, one at the age of 25 years and the other at the age of 62.

No apparent reason for this congenital anomaly presents itself in studying the development of the urinary system. The ureters are primary derivatives of the bladder, growing cephalad to meet the metanephric tissue. Their lumina appear either as a result of central absorption of the epithelial outgrowth or are present primarily in the process of their evagination from the bladder[1]. The failure of these processes to be completed would give rise to the obliteration of the lumen. Another explanation rests on an anatomic characteristic of the ureter in the embryo, namely, the presence of valves. In the case reported by Watson and Cun-

3. Bryant and Buck: American Practice of Surgery 1 and 3: 1906.

* From the Pathological Laboratory, Lincoln Hospital and Home, G. L. Rohdenberg, M.D., Director.

1. Huntington: Harvey Lectures, New York, 1906-1907, p. 222.

ningham,[2] it is probable that the valves became adherent at their margins or lost their elasticity and so caused the narrowing of the lumen.

In the ureter there are three sites of predilection where the lumen may be obliterated: at the junction of the ureter with the renal pelvis, at the brim of the bony pelvis, and at the vesical end. When the obstruction occurs at the vesical end, obliteration may occur just outside the bladder, or in the muscular coat, or at the bladder opening of the ureter. With obstruction just outside the bladder, there is a cystic dilatation extending up a variable distance from the bladder while the inner surface of the viscus is negative. With the stricture in the middle coat, there is no obvious abnormality, except perhaps a dimpling or a moderate pouting at the site of the ureteral opening. When the obliteration occurs at the ureteral orifice, there is a cystic outpouching from the ureteral opening which may vary daily in size, as in Buerger's case,[3] or enlarge so that it may present at the external urethral meatus as in the cases described by Bostrom.[4]

As is to be expected, the narrowing of the lumen produces a back pressure which results in structural and physiologic changes in the tract behind the stricture. The extent of these changes is dependent on the degree of the atresia. If obstruction is incomplete, there is a dilatation of the lumen of the ureter accompanied by a hypertrophy of the wall. The renal pelvis becomes dilated, and atrophy of the pyramids and renal parenchyma follows. If the atresia is complete, the result is either an atrophy of disuse or a hydronephrosis, with or without a pyogenic infection. The fluid in the hydronephrotic cases, as Sollmann, Williams and Briggs[5] have shown, possesses the characteristics of a transudate and not that of urine.

The cases occurring in the literature are, briefly abstracted, as follows:

REPORT OF CASES

CASE 1.—A man, aged 25, was operated on at the age of 14 for a right-sided hydronephrosis and at the age of 25 for a left-sided pyonephrosis (Wipple[6]).

CASE 2.—A bilateral congenital atresia occurred in an 8 month old fetus at the vesical opening of the ureters with beginning double hydronephrosis (Welz[7]).

CASE 3.—The age of the patient is unknown, but he presented a marked degree of bilateral hydronephrosis due to unyielding ureteral valves (Watson and Cunningham[2]).

CASE 4.—A boy who died thirty hours after birth presented a right ureter obliterated 5 cm. from the kidney and the left ureter obliterated 2 cm. above the bladder (Mutach[8]).

CASE 5.—A man, aged 62, presented a bilateral stricture at the vesical openings indjcated by minute depressions at the tip of protrusions appearing at the normal ureteral openings in the bladder. This was probably the type in which the stricture was situated in the ureter as it passed through the muscular coat of the bladder (Burchard[9]).

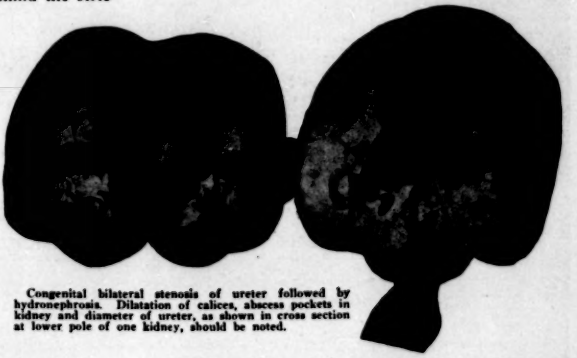
CASE 6.—A boy who died one hour after birth from respiratory difficulties presented the ureter patent on the right side for a distance of 3 cm. from the bladder, the left ureter being patent for 2 cm. This author states that similar cases have been reported by Hoenes and Ahlfeld (Dycherhoff[10]).

AUTHOR'S CASE

A boy, aged 1 month, was brought to the hospital with the statement that he had been restless and vomiting since birth. Birth had been normal. Physical examination revealed a marked state of malnutrition. The abdomen was much distended, the superficial veins being prominent on both sides. The child was moderately jaundiced. The temperature varied from 99 to 100 F. After three days in the hospital the infant died.

At the necropsy, aside from the jaundice of the skin and organs, only two abnormalities were found: the first of these was that of the gallbladder. The viscus was distended with a colorless mucoid substance, and the cystic duct was completely angulated on itself so that the two limbs were parallel. They were held in this position by a vascular band containing the cystic artery. On cutting this band the obstruction was released and the contents of the gallbladder could be expressed into the duodenum.

The second abnormality was in the urinary system: Both kidneys were enlarged, the pelvis and calices were dilated,



Congenital bilateral stenosis of ureter followed by hydronephrosis. Dilatation of calices, abscess pockets in kidney and diameter of ureter, as shown in cross section at lower pole of one kidney, should be noted.

and the pyramids were flattened. The left kidney presented several abscess pockets, the largest of which was 5 cm. in diameter. Both ureters were markedly dilated, measuring almost 1 cm. in diamter, the ureteral walls being 0.25 cm. thick. A probe could be passed through their entire course except at the vesical end where they permitted the passage of only a horsehair. The urethra was patent and the bladder showed no abnormality. The accompanying illustration shows the condition better than words can describe it.

2. Watson and Cunningham, cited by Eisendrath: Surg., Gynec. & Obst. 13:533 (June) 1911.
3. Buerger, cited by Bottomley, Ann. Surg. 52:597 (Nov.) 1910.
4. Bostrom, cited by Schwarz: Beitr. z. klin. Chir. 18:159 (Nov.) 1895.
5. Sollman, Williams and Briggs: J. Exper. M. 9:71 (Jan.) 1907.
6. Wipple, cited by Welz: Inaug. diss., München, 1903.
7. Welz: Inaug. Diss., München, 1903.
8. Mutach, cited by Welz (Footnote 7).
9. Burchard: Centralbl. f. allg. Path. u. Path. Anat. 7:129 (Feb.) 1896.
10. Dycherhoff: Inaug. Diss., Kiel, 1900.

Institution to Promote Cleanliness and Hygiene Among Schoolchildren.—The women of the Comité femenino de Higiene Popular of Spain have fitted up a building at Madrid equipped with all that is necessary for baths, etc., for schoolchildren, especially to "hygienize" the children as they are to be sent out of town to the seashore sanatoriums, school colonies and for other outings. The building has been placed at the disposal of the city authorities, and the work of caring for the children is done by the women of the league or the public health personnel. The children have their hair cut, the head disinfected, the mouth put in order and the teeth attended to by a woman dentist. There are douches and other bathing facilities and the institution is open for work every week-day, from 8 a. m. to 8 p. m., everything gratuitous. It is hoped to install more of these Casas de Higiene Benéfica Infantil in other crowded parts of the city.

ANKYLOSIS OF THE JAW DUE TO FIXATION OF THE TEMPORAL MUSCLE

METHOD OF TREATMENT *

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ROCHESTER, MINN.

It is sometimes difficult to determine definitely the side involved and the location of the fixation of an ankylosis of the jaw. This is particularly true in cases in which the jaws are fully formed before the ankylosis has occurred and in which there is no deformity. The diagnosis of the location is not so difficult when the fixation has occurred early in life, causing the deformity typical of such cases.

Ankylosis of the jaw may be said to be of three types: (1) articular ankylosis, the most common type, due to the involvement of the temporomaxillary joint,

Fig. 1.—The superficial temporal artery, internal maxillary artery, facial nerve and the location of the incision.

(2) extra-articular ankylosis, in which the extra-articular structures or muscles are the cause, and (3) articular-extra-articular ankylosis, in which both the joint and the extra-articular structures are at fault. The clinical points of value in determining the side involved and the location of the ankylosis have been brought out in a recent article.[1]

The treatment of the articular type of ankylosis gives uniformly good results. It consists of an arthroplasty of the temporomaxillary joint through a curved incision 2 inches long, extending above the zygoma and down in front of the ear, and the removal of at least one-half inch of the condyle and the ascending ramus of the jaw. It is not necessary to interpose any tissue in the new joint. When the jaw is not deformed, the operation is not difficult. If the typical deformity of ankylosis developed early in life is present, the joint will be very low and should be attacked from above by removing the lower margin of the zygoma. In this way the facial nerve is avoided, which is liable to

Fig. 2.—Appearance after removal of a portion of the zygoma and exposure of the coronoid process, and the attachment of the temporal muscle.

injury if care is not taken in making the dissection in the soft tissues.

The treatment of the extra-articular and the articular-extra-articular types of ankylosis are much more difficult and present many problems. A recent

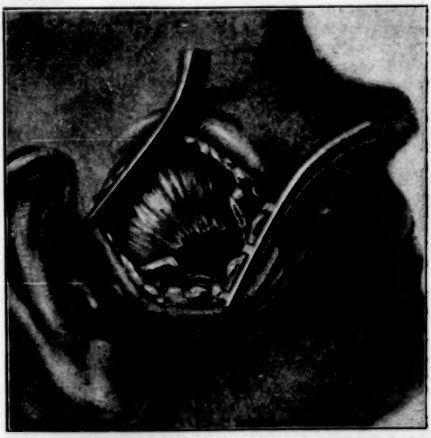

Fig. 3.—Appearance after removal of the coronoid process along with the attachment of the temporal muscle.

case of extra-articular ankylosis of the jaw, due to fixation of the temporal muscle, suggested a method of treatment which, so far as I know, is new for this type of case.

*From the Section on Laryngology, Oral and Plastic Surgery, Mayo Clinic.

1. Henderson, M. S., and New, G. B.: Ankylosis of the Jaw, Surg., Gynec. & Obst. 27:451-458 (Nov.) 1918.

REPORT OF CASE

History.—N. A. B. (Case 118426), a farmer, aged 36, came to the clinic, Jan. 8, 1919, on account of inabilty to open his mouth. This trouble followed a gasserian ganglion operation here three and one-half years ago. The operation had been done by Dr. E. H. Beckman for trifacial neuralgia of several years' standing. The notes of the operation, July 21, 1915, follow:

"The operation was done in two stages. The Cushing incision was made, and large tortuous vessels were found throughout the entire dura. Because of the severe hemorrhage it was thought best to divide the operation into two stages and a gauze pack was inserted to be left in place for twenty-four hours. July 29, 1915, the second stage operation was done. The posterior root was evulsed and most of the ganglion removed. The bottom of the pocket was packed with gauze to control hemorrhage; the gauze was removed twenty-four hours later."

The patient made an uneventful recovery except that he was unable to open his mouth after the operation; he secured complete and permanent relief from pain.

The ankylosis was complete and the patient had received no treatment for it. Except for the scar in the left temporal region extending down in front of the ear, the face was symmetrical and there was no atrophy. It was believed that the ankylosis was due to the fixation of the temporal muscle either from cutting it across at the time of the operation or from secondary inflammatory reaction. The patient was given ether, and an unsuccessful attempt was made to stretch the jaws open. In order to restore the function of the jaw, an operation was performed.

Fig. 4 (Case 118426).—Complete ankylosis of the jaw due to fixation of the temporal muscle following gasserian ganglion operation.

Fig. 5.—Appearance after removal of the coronoid process and the attachment of the temporal muscle.

Operation and Result.—The incision was the same as that used in the operation for arthroplasty of the temporomaxillary joint (Fig. 1). The skin and superficial tissues were incised down to the temporal fascia. A mastoid retractor was inserted and the zygoma exposed well forward. In elevating the soft tissues over the zygoma it is essential to keep close to the bone, thus preventing injury to the facial nerve. By means of blunt dissecting scissors and a periosteal elevator the inner surface of the zygoma was freed so that a piece of it 1 inch long was removed with a Gigli saw (Fig. 2). This piece was placed in a warm, wet gauze sponge. The temporal muscle and coronoid process were then exposed and removed with a curved chisel and a bone-biting forceps. The attachment of the temporal muscle to the inner surface and notch of the ascending ramus was removed by blunt, dissecting scissors (Fig. 3).The temporomaxillary joint was exposed but not opened, and was found to be normal. The piece of the zygoma that had been removed was replaced and sutured by catgut sutures, and the wound closed with catgut and dermal sutures. The following day the patient could open his mouth, and in a week's time he was able to separate his teeth 1 inch. The facial nerve was not injured. He was given a screw-top mouth-gag, but he preferred to use wooden tongue depressors placed together on the flat to exercise his jaws; he could put nine of these between his teeth. He was able to chew meat or any type of food. This good function of the jaw has been maintained now for four months.

AN ORIGINAL TEST FOR THE PATHOLOGIC GREAT TOE SIGN

WITH ILLUSTRATIVE CASES *

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While making a study of a remarkable grouping and diffusion of various reflex responses found in the followng case of back injury referred by Dr. J. F. Norman of Crookston, in May, 1917, my attention was attracted by one among other highly interesting phenomena, to a sharp dorsal extension of the great toe occurring when an upward stroke was made with a blunt point over the anterior surface of the ankle. Application of this test in various cases following this observation led to the definite conclusion that an original method of eliciting the pathologic toe sign had been discovered.[1]

REPORT OF CASE

CASE 1.—T., a single man, aged 52, while reaching under a section of barn floor which was being lifted by several men, was doubled over sharply when they accidently let it down on his shoulders. He felt a band of numbness around the midbody immediately, but continued his work. For three months he suffered from a dull pain in the region of the original numbness. This gradually improved, and was followed by sharp "cramplike" pains in the same zone. These subsided slowly and were succeeded by numbness in the feet, gradually rising to the waist line. About three weeks later the legs began to grow weak, complete loss of motion rapidly supervening, followed immediately by retention of urine.

The patient came under observation about four days following the onset of these symptoms. His general nutrition was poor, and he had lost 30 pounds. The face muscles and upper extremities were normal, but there was marked atrophy in the legs. The patellar response was abolished on both sides. There was no ankle clonus, but a marked Babinski response in each foot, and after an interval of about a second extension of the other great toe, accompanied by contraction of the adductors of the thigh. There was also positive reaction to the Oppenheim and Chaddock tests in both feet. Moderate dulling of tactile and pain sense was found over both lower extremities up to a point 2 inches below the

* Read before the Section on Nervous and Mental Diseases at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Preliminary material on the subject was presented before the Minnesota Neurological Society, Jan. 15, 1918, and an abstract published in Minnesota Medicine 1:110 (March) 1918.

umbilicus, and of tactile sense only to a line 2 inches above this point. When the pin point passed the lower of these lines, in determining its topography, it was noticed that dorsal extension of the great toe occurred, accompanied by retraction of the leg. All motor power was abolished in both legs. The abdominal reflexes were obliterated. During the investigation of these various phenomena it was accidentally noticed that stimulation of the anterior surface of the ankle was uniformly followed by dorsal extension of the great toe. And various tests showed that the best response was produced by an upward stroke with a dull point, for a distance of about 2 inches.

A laminectomy was performed by Dr. H. B. Sweetser, May 5. The ninth to the twelfth spines were removed, exposing a brownish, fusiform, extradural mass opposite the ninth and tenth vertebral bodies. This was carefully removed and found to be a hypernephroma.

Fig. 1.—Method of eliciting test: blunt point in position for beginning of stroke.

May 10, the patient reported his legs feeling more comfortable. The Oppenheim and the Chaddock responses had disappeared. The Babinski reflex was present on both sides; and an upward stroke over the ankle surface also produced extension of the great toe. Sensation had improved in the segmental zone below the umbilicus, and that just above it had become hyperesthetic.

May 28, it was reported that the zone of hyperesthesia had disappeared about two weeks before. Sensation was normal now to the line 2 inches below the umbilicus; but below this point there was no change. As the pin passed this line there was still an occasional extension of the great toe. The Babinski reflex was present on both sides, and muscular contraction of the shoulder and of the upper arm of the same side followed the test after about one second's delay; but diffusion did not now cause extension of the opposite great toe. Stimulation of the skin over each ankle also produced extension of the toe, and there was a slight Oppenheim on the right. Patellar response was absent, and no ankle clonus existed. There was no control of the bladder and no power in the legs. The patient returned to his home at this time.

About eight months later he reported continued improvement, with power to reflex and extend the legs, move the toes and to lift either foot from the floor. And he was then able to get from his bed to his wheel-chair and back alone.

COMMENT

All the various methods that have been devised by different observers for eliciting the great toe reflex, Babinski, Oppenheim, Gordon, Chaddock and that which I have described, are of identical significance, predicating definite involvement of the motor neuron at some level. The explanation of the occurrence of a positive reaction to one of these tests and its absence to others, in any given case, is an interesting study, and the reason evidently depends on the exact level of arc, or on the individual sets of fibers involved, one sensory stimulus linking with and another missing the activation of the exact motor path concerned. In properly bringing out the various responses, the skill of the technic employed is of distinct importance. All require deft application for accuracy and certainty of conclusion. To develop the Babinski response, Barker directs stroking with a blunt point along the inner plantar border. This is certainly not the best practice. The surest reaction is always found by stroking nearer the outer margin or across the ball of the foot. Sometimes it will be found only by stroking back near the heel; again, midway forward, and in many, only by a stroke across the ball of the foot inward. At times a very light touch, at others deep and firm pressure, produces the best response. A quick stroke may be most effective in one instance, a slow movement in another. All should be employed fo rexact and complete knowledge. The clumsy rubbing of the thumb nail along the sole of the foot is extremely crude. A blunt-pointed instrument properly shaped for the purpose should always be employed for the Babinski test and for mine. Oppenheim's sign is best determined by running the soft ball of the thumb or finger tips, with firm pressure, down the lower 3 inches of the inner posterior border of the tibia. A similar movement around the external malleolus from behind forward brings out the Chaddock. And a quick, deep grasp of the calf muscles develops Gordon's sign. The best method for eliciting the reflex response under present consideration is by stroking with a blunt point upward over the dorsal surface of the ankle, for a distance of about 2 inches, the lower leg being horizontal and the musculature relaxed (Fig. 1). The amount of pressure necessary varies in different cases. A direct, quick thrust against the surface with the point of the instrument is sometimes effective, and a downward stroke occasionally also, but not as uniformly as the upward movement. Usually the test finds the best response when applied up the median line (Fig. 2), but occasionally it will be found either toward the inner or the outer side of the ankle surface.

Of all methods of developing the positive toe sign, Babinski's is undoubtedly most constantly effective. Of the others, I have found my method next in constancy, and distinctly more frequent than that of Oppenheim, while a response to either the Chaddock or the Gordon test is decidedly uncommon in my experience. To be clearly positive, a dorsal extension of the great toe is essential. Simple immobility of the toe is atypical, but its meaning or importance is not certain. The behavior of the other toes varies widely. They may flex, extend or remain inert; or they may spread, fanlike. This behavior of the small toes should have more careful observation for possible added value in the complete interpretation of these tests.

Fig. 2.—Typical dorsal extension of great toe in the application of the test.

While a considerable series of cases has been under observation and study in determining the value of this test, it is not deemed necessary or desirable to extend the text by detailing numerous case histories. Brief presentation, however, of one or two striking illustrations of its presence in chronic degenerative and acute inflammatory conditions may not be amiss.

ILLUSTRATIVE CASES

Case 2.—H. K., a man, aged 40, referred by Dr. C. M. Kistler, had had a chancre fifteen years before. He was a plumber by occupation, had been married twelve years, and of his seven children four were stillborn. He had pain between the shoulders and down the back for two years, and increasing trouble in controlling the urine. There had been a loss of sexual power in the preceding two months, and steadily increasing difficulty in walking; but he was in good nutrition and color. The right pupil was larger than the left and not circular; it did not respond to light. The iris had

that tense, flat appearance with loss of the normal velvety softness, as characteristic of the tabetic eye as the so-called Argyll Robertson pupil, which I first described[2] in 1917. There was moderate incoordination in the arms, and all arm reflexes were abolished. Patellar responses were entirely wanting. There was decided incertitude of gait and marked ataxia of station. No ankle clonus appeared, but marked Babinski, Oppenheim, Chaddock and Gordon reflexes were present, and a positive response to a stroke over the dorsal surface of the ankle on both sides. Serologic findings in the spinal fluid were positive; in the blood, negative.

CASE 3.—Paul, P., aged 7, seen in consultation with Dr. G. M. Doran, Feb. 22, 1919, presented an unusual picture of acute bulbar paralysis (lethargic encephalitis), apparently of influenzal origin. The mother was of a neurotic temperament. About four weeks before, following a rather slight indisposition, probably influenzal, tendency of the eyes to turn in was noticed. The tonsils were removed a week later. Crossing of the eyes increased and became continuous. Two weeks later the child began to have distinct difficulty in speech and had several attacks of vomiting. About five days afterward difficulty in walking developed, accompanied by marked staggering. Swallowing was not involved at that time. When first seen he was pale, and there was a marked internal strabismus, double, but with greater involvement of the right eye. The pupils were normal; speech, very dysarthric, and there was slight power of phonation. The facial muscles were all in action, but the tongue did not protrude. There was some incoordination in arm movements, pendulum swaying when he sat erect, a reeling stagger when on his feet and inability to stand without support. The arm reflexes were negative; the patellar response, overactive and equal. There was no ankle clonus. The great toe sign was positive to all tests, including that which I have described. Distinct lethargy. No nuchal rigidity existed, and no Kernig sign. The next day swallowing was affected. Respiration became difficult; the heart, weak; the pulse, faint and fast, and, following a rapid failure of strength, the patient died that evening.

SIGNIFICANCE OF RESPONSE

The commonly accepted interpretation of a dorsal extension of the great toe on stimulation by any of the various tests is the presence of definite organic damage to the motor tracts or fibers at some level. And, undoubtedly, this is usually the condition; but not always. I have found the reaction present with the very earliest symptoms of acute cerebrospinal meningitis, on the second or third day in several cases, before organic destruction of motor neurons could have taken place; and I have seen the reaction diminish and entirely disappear with advancing recovery, no motor disability remaining. Barker's statement, therefore, that the positive toe sign does not appear until the second week is not correct.

SUCCESS OF NEW TEST

During the past two years, in which I have studied the occurrence of the pathologic great toe sign by the test here presented, it has been demonstrated in a fairly wide range of conditions of traumatic, inflammatory and degenerative type, including multiple sclerosis (frequently), spinal cord tumor, brain trauma, cerebral apoplexy, brain tumor (both cerebral and cerebellar), brain abscess, symptomatic epilepsy, syphilitic myelitis complicating tabes, spinal cord trauma, and lethargic encephalitis. It would therefore appear to be established as comparable to the Babinski test, only second to it in constancy of occurrence, and of identical significance and importance.

2. Crafts, L.: The Early Recognition of Multiple Sclerosis, J. A. M. A. 69: 1130 (Oct. 6) 1917.

ABSTRACT OF DISCUSSION

DR. GEORGE A. MOLEEN, Denver: The last word has not been said about the reflexes as indicating destruction of the pyramidal tracts. We have all been impressed with the variety of stimuli applied to the leg which would produce an extensor response in cases of organic lesion of the projection tracts. Even the pricking of a pin, in such frank degenerative conditions, has produced extension of the toe, and the more severe the stimulus the greater the associated response. I think not only the dorsal foot reflex but the von Bechterew, the Babinski, the Gordon and the Oppenheim have a somewhat similar interpretation for most of us and must be accepted as indicative of a lesion, more or less destructive or inhibitory, of the tracts. In a recent case in which all the reflexes were lost, as well as all function below the region of the ninth dorsal segment and after a laminectomy, the recovery of partial function was evident. Most interesting was the reflex to which Marie has called attention, the reflex of inhibition, consisting of a voluntary flexion of the thigh on forced plantar flexion of the toe. This reflex seemed to be an elaboration of that which we have regarded as the more elaborate form of a Babinski reflex. I believe it is yet to be decided which of these reflexes is to be considered as indicative of partial lesion, and which a complete, of the spinal cord, and meanwhile hope that something more definite will be brought out besides the association of other reflexes on which we must all rely at the present time.

Clinical Notes, Suggestions, and New Instruments

DIAPHRAGMATIC HERNIA: REPORT OF CASE

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Lieutenant, M. C., U. S. Army; Chief of the Roentgen Service
CAMP KEARNEY, LINDA VISTA, CALIF.

History.—W. M. B., aged 29, cook with the American Expeditionary Forces, was wounded by fragments from a high explosive shell, Oct. 11, 1918, while serving with the second antiaircraft battalion. He states that immediately after the injury he experienced difficulty in breathing, and blood came from the mouth. He ran forward for several hundred feet before falling unconscious. Within an hour's time he was picked up by stretcher bearers, taken to an ambulance, and finally placed in a French hospital. Roentgenograms were made, and a large number of shell fragments were found scattered throughout the upper third of the thigh, together with a larger fragment in the left lung. Fourteen hours after he was wounded he was operated on, and these fragments were removed. At the same time a long incision was made over the left dorsal region; the eighth, ninth, and tenth ribs resected; and the shell fragment in the lung removed. The patient states that the surgeons informed him that the diaphragm was perforated in two places. He was confined to the hospital for two months.

For the first fifteen days following the operation he was practically unable to retain any nourishment. After that time, milk and other liquid diets were tolerated, and were followed by bully beef soup and cabbage, which, the patient states, were not very appetizing. He substituted, therefore, articles of food that he could purchase.

Roentgenograms were again taken before he left France, and a diagnosis of pleural adhesions with contraction of the diaphragm was made. The medical treatment during his hospital care consisted principally of large doses of calomel, sodium bicarbonate, and castor oil.

The patient left France, Jan. 31, 1919, and was admitted to the base hospital at Camp Kearney, March 23. The following day he was sent to the roentgen-ray department with the request that roentgenograms be made of the left upper quadrant of the abdomen and the left chest.

The patient complained of inability to retain food of any solid variety, tolerating only liquids and the softer articles of diet. Food had to be administered cold; otherwise nausea and vomiting resulted. The patient complained of pressure symptoms and cardiac distress on exertion. Constipation was extreme.

Examination.—Nothing of interest could be found on routine examination, except some tenderness on palpation over the left upper quadrant of the abdomen.

Fig. 1.—Dense mass filling the left side of the thoracic cavity up to level of fifth rib posteriorly.

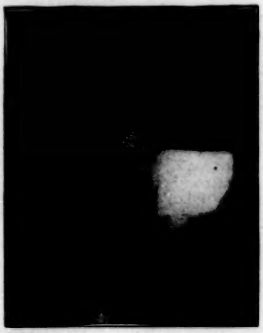

Fig. 2.—Hour glass appearance of stomach with patient in standing position.

Fig. 3.—Plate made with patient in prone position. Barium fills out thoracic shadow seen in Figure 1.

Stereoscopic plates made of the thorax disclosed a dense mass filling the left side of the thoracic cavity up to the level of the fifth rib posteriorly (Fig. 1). Its upper surface was smooth and convex in outline, and resembled very much the picture often seen in severe cases of empyema in which the diaphragm is drawn up by adhesions. No fluid level could be made out. The heart was crowded over to the right side, but was apparently normal in size when seen under the fluoroscope. From the history and the roentgen findings, a tentative diagnosis of diaphragmatic hernia was made, and the patient prepared for a gastro-intestinal examination.

He experienced considerable difficulty in taking the barium meal, but by drinking very slowly was able to ingest the full meal of 16 ounces. The obscure shadow seen on the first plates now proved to be the stomach. In the standing position, the fluid level reached the margin of the tenth rib posteriorly, with the air bubble one-third the size of the barium shadow above that. Peristalsis was extremely slow, but after ten minutes' time the barium solution began to trickle through into a smaller sac, which was evidently the pyloric end of the stomach. The roentgen appearance was that of an hour-glass stomach (Fig. 2). The constriction of the stomach at this point was due to the contraction of the diaphragm around the stomach, but became effaced to some extent as the barium solution filled the lower sac. With the patient in the prone position, the barium solution completely rounded out the stomach, which now gave the appearance of being a thoracic organ, its upper border being on a level with the seventh rib posteriorly (Fig. 3). Seven hours later a barium residue was noted in the stomach, and here again was found the hour-glass appearance (Fig. 4).

Fig. 4.—Six hour plate. Typical hour glass appearance. Constriction due to contraction of diaphragm.

Fig. 5.—Forty-eight hour plate showing position of splenic flexure at a point on a level with the intervertebral disk between eleventh and twelfth thoracic vertebrae.

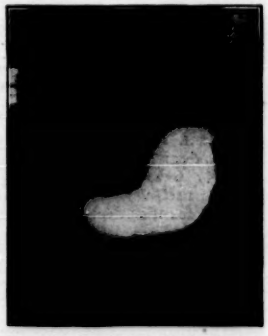

Fig. 6.—Stomach three weeks after operation: Normal in shape and outline. Cap visualized.

Twenty-four and forty-eight hour plates showed practically no difference in the position of the barium column in the colon. The hepatic flexure was about normal in position, while the splenic flexure reached a point on a level with the intervertebral disk between the eleventh and twelfth thoracic vertebrae (Fig. 5).

Operation and Result.—An operation was performed by Major James F. Percy, chief of the surgical service, and Major T. E. Bailey. A median line incision was first made through the abdomen, but it was found impossible to reduce the stomach through this route. The stomach was adherent to the diaphragm and to surrounding structures. A second incision was made into the thorax, and the sixth and seventh ribs were resected. Two thirds of the stomach was found to be in the thoracic cavity, and was adherent to the pericardium. The adhesions were quickly separated, and the stomach reduced with considerable difficulty through a large opening in the posterior part of the diaphragm to which the stomach was adherent. The hole in the diaphragm was then closed, and the stomach now occupied a normal position in the abdomen. Forty-eight hours later the patient was smoking a cigaret and apparently comfortable.

Three weeks later the patient's condition was so improved that he was again sent to the roentgen-ray department. The stomach was apparently normal in position and outline. Peristalsis was regular and the pyloric cap visualized (Fig. 6.) The prognosis for a complete recovery is excellent.

PUNCTURED WOUND OF THE EXTERNAL ILIAC ARTERY WITH SUCCESSFUL TYING OF THE VESSEL

CHARLES F. DAVIDSON, M.D., EASTON, MD.

History.—L. S., aged 15, white, schoolboy, was thrown, Feb. 22, 1919, from a load of straw and fell on a three-prong pitchfork. His father, aged 40, was living and healthy. His mother died at the age of 35 of pulmonary tuberculosis. There were two brothers living, 6 and 10 years old, respectively, both healthy. One brother died in infancy. There were no sisters. He had not had any diseases except scarlet fever. He had always been healthy.

I reached the patient twenty minutes after the accident. He was entirely pulseless at the radial and temporal arteries. The heart sounds were indistinct. Respiration was 8; the skin was cold and covered with clammy sweat. The pupils were dilated and responded slowly to light. His mind was clear and he was thoroughly conscious. There was one lacerated wound over the pubic bones 3 inches long, through the skin to the bones. There was a punctured wound half way between the symphysis pubis and the anterior superior spine of the ilium. There was another punctured wound on the outside of the right anterior superior spine of the ilium through the skin to the bone and down along the outside of the bone 1 inch deep.

Preoperative Treatment.—The feet of the patient were elevated. Hot coffee enemas were given, one twelfth grain of morphin was given hypodermically, and 30 drops of aromatic spirit of ammonia in water were given every fifteen minutes for four doses. Absolute quiet was instituted. In two hours he said he felt better. The temporal pulse was 140; the radial pulse was wanting. He was then brought to the emergency hospital on the cot on which he was found and one-twelfth grain of morphin and 1/150 grain of atropin were given hypodermically. The patient was carried to the operating room half an hour later. Anesthesia was begun at 3:10 p. m. The temporal pulse was 140. The operative area was washed with alcohol followed by ether and painted with iodin.

Operation.—This was begun at 3:25 p. m. The temporal pulse was 110. The operation was completed at 4:15 p. m. The radial pulse was 146. The lacerated wound over the pubic bone was sutured. The punctured wound on the outside of the pelvis was opened at the lower end, and a gauze through and through drain was put in. Incision was made at the edge of the right rectus. As soon as the rectus muscle was pushed aside, it was seen that black, clotted blood had infiltrated the peritoneum and all the tissues. Black, clotted blood was between the serous and the muscular coats of the bladder and the intestine, particularly the cecum, which was as black as the bladder. There was free clotted blood at the lower point of the right kidney. At least a pint of clots was removed from this point. There was no free blood within the peritoneal cavity. No perforation in the intestine could be found. After the intestine was pushed aside, there was a gush of bright red blood into the field. I seized the right common iliac artery with the thumb and forefinger of the left hand. The anesthetist said: "One more like that and he will be dead." The incision was enlarged. The field was packed off and the external iliac artery was brought into view. I lessened the pressure on the common iliac and bright red blood rushed from a little hole not larger than the lead in an ordinary lead pencil in the front and about the middle of the external iliac. I tightened my grasp on the common iliac. All the blood was sponged out and the hole was plainly visible in the external iliac. Hemostatic forceps were put on the external iliac artery, one on each side of the hole, and the grasp on the common iliac was released. The hemorrhage was controlled. It was just 4 o'clock when the clamps were applied. The clamp on the cardiac side moved on each pulsation of the heart. A silk ligature was put around the artery on the cardiac side of the clamp and one on the distal side of the other clamp. A cigaret drain was put at the lower end of the right kidney, one down in the pelvis behind the bladder, and one under the cecum. These were brought out of the abdominal incision and the wounds closed to the drains and the two hemostatic forceps that were left in situ. It was impossible to close the peritoneum because it was so infiltrated with blood as to make it so friable that the stitches would not hold. The aponeuroses were drawn together with twenty-day chromicized No. 3 catgut and the skin was sutured with silkworm gut. The patient left the operating table at 4:15. During the operation Dr. W. T. Hammond, with the assistance of a nurse, gave by infusion 1,000 c.c. of physiologic sodium chlorid solution and constantly administered oxygen with ether. He gave the anesthetic and conducted that part of the operation that kept the patient alive during the operating work.

Clinical Course.—The patient was sent to his room with a radial pulse of 146 and a respiration of 30. An immunizing dose of tetanus antitoxin was given as soon as he became conscious after the anesthesia. The right leg became purple and enlarged in size. Pulsations were first felt in the posterior tibial artery at 6:10, two hours and ten minutes after the external iliac was fastened with the hemostatic forceps. The right leg immediately commenced to become normal and in a few hours was the same color and the same size as before the accident. When the patient was first sent to his room, his head was lowered and proctoclysis with physiologic sodium chlorid solution by the drip method was begun. After regaining consciousness the patient complained of great thirst and was given water. The next day he took and retained broths, soft eggs and milk. The hemostatic forceps were removed on the fourth day and the drains were started on the fifth day and were entirely removed on the eighth day, to be replaced by smaller ones. As soon as his condition allowed it he was placed in Fowler's position. There was very little draining the first three days, but profuse draining after that. Whenever his temperature and pulse would go high, a Kelly clamp passed in the wound would drop down behind the bladder and a profuse discharge of pus would follow the withdrawal of the clamp. The patient made an uneventful recovery and left the hospital, April 5, 1919, still draining but with not retention enough to cause any rise of temperature.

The patient reported to my office May 17 and again June 2, walking well. He said he was all right and felt fine. The abdominal wound was entirely healed at the time of the visit, May 17.

COMMENT

My only other experience in tying the external iliac artery was when I was in von Bergman's clinic. I saw him tie the external iliac for a traumatic aneurysm of the femoral caused by sheep-shears puncturing this vessel. In this case it was one hour and ten minutes before collateral circulation was established, the difference being due to the fact that his patient was in perfect health and my patient was in collapse from hemorrhage.

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SATURDAY, JULY 26, 1919

THE RENAL THRESHOLD FOR BLOOD SUGAR

The widespread application of quantitative blood sugar tests in the study of disease promises to be helpful not only in diagnosis but also in the therapeutic management of patients. It is impossible to make complete reference here to the numerous meritorious researches on blood sugar. Nevertheless, we may justly point with a certain amount of pride to the patent fact that alike in the devising of experimental methods and in the refined study of the new problems of carbohydrate metabolism, American investigations in the laboratories and clinics have been second to none. Science, it is true, knows no boundaries of race or nationality; but the time has come when charges of practical materialism shall no longer overshadow the just deserts of American research in medicine.

As an outcome of the newer work it has seemingly become important to look on hyperglycemia, or an abnormally high level of blood sugar, as competing in significance with glycosuria, or glycuresis, as it has been more recently designated.[1] Heretofore, emphasis has for the most part been placed solely on the content of sugar in the urine. This was inevitable so long as practicable methods of estimating the level of glucose in the blood were not yet available. Today, rapid procedures of sugar analysis on readily obtainable small samples of blood have altered the situation. By such tests it has become evident that a considerable elevation of the blood sugar level may occur under certain circumstances without evidence of the fact in the urine. The problem of the renal threshold for sugar elimination is thus raised. If the average normal blood sugar value is placed at 0.11 per cent., with a range of from 0.07 to 0.14 per cent. of glucose, the normal threshold will probably be not far removed from 0.17 or 0.18 per cent. Only when the sugar concentration in the blood exceeds this figure does the carbohydrate ordinarily escape into the urine in appreciable amounts.

1. Glycuresis Versus Glycosuria, editorial, J. A. M. A. **72**: 1772 (June 14) 1919.

The renal threshold may become decidedly higher in such diseases as diabetes and nephritis. Basing their conclusions on observations in the Hahnemann Hospital at Rochester, N. Y., Williams and Humphreys[2] assert that the threshold in diabetes tends to rise with the prolonged duration and the increasing severity of the disease. According to them, younger diabetics as a rule have low or normal thresholds. The threshold rises with advancing years. When the diabetes is mild or quiescent, the point at which the kidneys eliminate sugar is stationary; but when the disease becomes progressive, the threshold tends to rise. Indeed, before death the blood sugar renal threshold may reach great heights with little or no sugar appearing in the urine. A rising renal threshold for sugar in the face of careful dietary treatment is a serious prognostic sign. A high renal threshold for sugar in mild diabetes under proper dietary regulations usually indicates some complication, as arterial hypertension.

An important practical problem arises out of these recently discovered facts regarding the renal threshold for sugar. What is the proper index of tolerance for carbohydrate? Shall the intake of this group of nutrients be regulated to prevent glycosuria or to reduce the blood sugar level to a lower threshold value? Let us bear in mind that glycosuria is not a necessary accompaniment of decreased tolerance which may be measured in diverse ways.[3] Mosenthal[4] and his collaborators at the Johns Hopkins Hospital have suggested that a high blood sugar level in diabetes may be a protective mechanism, conserving the carbohydrate somewhat for the uses of the organism. Williams and Humphreys rejoin in the belief that persistent high blood sugar levels promote exhaustion and rapid decline of function, and that the high threshold is merely a safety measure. In severe diabetes, in which extremely low diets are necessary to maintain life, the high threshold is essential to take care of the seriously impaired carbohydrate metabolism. In the treatment of diabetes, they add, it is desirable to maintain the blood sugar level as nearly normal as possible, even though severe restrictions in diet may be necessary for this purpose, and notwithstanding the fact that the high threshold will permit of a much more liberal diet without the appearance of sugar in the urine.

We are not prepared to take a final stand in this issue. On the outcome must depend the proper plan of dietotherapy in diabetes. From the one standpoint,

2. Williams, J. R., and Humphreys, Eleanor M.: Clinical Significance of Blood Sugar in Nephritis and Other Diseases, Arch. Int. Med. **23**: 537 (May) 1919; The Clinical Significance of Blood Sugar in Diabetes Mellitus, ibid., p. 546; Observations of Tolerance and Rate of Utilization of Glucose in a Series of Individuals Exhibiting Various Degrees of Diabetes Mellitus, ibid., p. 559.

3. Janney, N. W., and Isaacson, N. I.: A Blood-Sugar Tolerance Test, Proc. Soc. Exper. Biol. & Med. **15**: 15, 1917.

4. Mosenthal, H. O.; Clausen, S. W., and Hiller, A.: The Effect of Diet on Blood-Sugar in Diabetes Mellitus, Arch. Int. Med. **21**: 93 (Jan.) 1918.

food would be permissible just short of the amount that induces glycosuria; from the other, the indication for control would be found in the blood sugar level rather than in urine tests. A further feature of practical interest has been pointed out anew by Williams and Humphreys. In severer cases of nephritis, patients may excrete small quantities of sugar in the urine, frequently giving rise to the misapprehension that true diabetes exists. In such cases, they remark, the blood sugar level is inappreciably influenced by carbohydrate restriction, and these patients should not be subjected to the discomfort of rigorous diabetic diet.

ANTISCORBUTICS: I

Ever since Holst and Fröhlich[1] asserted, in 1912, that the antiscorbutic property of certain fresh vegetables and fruits may be to a large extent lost when they are subjected to a high temperature or are dried, students of nutrition have been more alert to the possible effects of culinary processes on some of the less understood properties of foods. Although, as has already been discussed in these columns, McCollum and his colleagues have assumed that scurvy is a disease related to intestinal putrefaction and the retention of feces, the concordant opinion of other recent investigators, notably Givens, Hart, Hess, Mendel, Steenbock and their co-workers in this country, and Chick, Harden and their collaborators in England, has substantiated the earlier view that the disease is the result of a deficiency of some nutritive factor in the diet. From this standpoint we may speak of the lack of an antiscorbutic vitamin, just as the lack of an antineuritic vitamin is postulated in the genesis of polyneuritis.[2]

The lack of knowledge of the distribution of antiscorbutic vitamins has been accentuated by the needs of infant feeding. The use of cow's milk pasteurized at a temperature as low as 63 C. (145.4 F.) for thirty minutes has led in the course of several months to milk outbreaks of infantile scurvy,[3] thus indicating the poverty of heated milks in the antiscorbutic vitamin. Only recently Hart, Steenbock and Smith have demonstrated at the University of Wisconsin that milk sterilized at 120 C. for ten minutes, commercial unsweetened condensed milk, and the commercial milk powder examined had lost their antiscorbutic properties when used in quantities equivalent to an amount of raw milk which would prevent scurvy in guinea-pigs on a diet of rolled oats and dried hay. From such citations it becomes evident why investigators of infant feeding have sought suitable sources of antiscorbutics and why producers of food preparations are concerned with the retention of native antiscorbutic potency so far as this is possible. Recent writers[1] have sanely summarized the situation by saying that either the results with guinea-pigs on experimental scurvy should not be translated to infantile scurvy, or we should follow the wiser course of using some antiscorbutic in conjunction with the exclusive use in infant feeding of such heated milk products as have been described.

Thanks to the labors of a number of investigators both here and abroad, the pediatrician is no longer limited to the conventional orange juice in his efforts to avert scurvy in infants. Reference has been made in THE JOURNAL to some of the novelties, such as the raw juice of the swede and the tomato, which are also available for human nutrition. Although the antiscorbutic value of fruit juices was recognized three hundred years ago, Alice Henderson Smith[4] of the Lister Institute in London has upset the traditional faith in lime juice, as the result of her historical studies. It appears that the juice used with good effect in the olden days was in reality obtained from lemons and sweet limes, not from the West Indian sour limes. With the change to the sour limes has come a failure in antiscorbutic potency that was difficult to understand until it was demonstrated recently by experimental tests on animals that the sour lime of the West Indies (*Citrus medica-acida*) happens to have only one quarter of the antiscorbutic value of the lemon (*Citrus medica-limonum*). Lemon juice is easily available for the treatment of infantile scorbutus. Harden and Zilva[5] have further demonstrated that after removal of the free citric acid and other acids from lemon juice, the residue also retains its antiscorbutic activity; and in collaboration with Still[6] these investigators have, for the first time, clinically employed with success this antiscorbutic factor separated from the greater part of the inactive components in combination with which it occurs. The vitamin-containing product could be administered in large dosage after the refinement and the exclusion of extraneous substances. In fact, the lemon product was given in concentration at least double—in one case seven times—as strong as the form in which it occurs naturally in the foodstuff (lemon) from which it was obtained. The treatment was thus, so to speak, "intensive," reminding one of the seemingly potent therapeutic procedure of Hess, who introduced orange juice directly into the circulation of scorbutic infants.

1. Holst and Fröhlich: Ztschr. f. Hyg. **72**: 1, 1912; **75**: 334, 1913.
2. Hess, A. F., and Unger, L. J.: Scurvy, VIII: Factors Affecting the Antiscorbutic Value of Food, Am. J. Dis. Child. **17**: 221 (April) 1919. Hart, E. B.: Steenbock, H., and Smith, D. W.: Studies of Experimental Scurvy: Effect of Heat on the Antiscorbutic Properties of Some Milk Products, J. Biol. Chem. **38**: 305 (June) 1919.
3. Hess, A. F., and Fish, Mildred: Infantile Scurvy: The Blood, the Blood-Vessels and the Diet, Am. J. Dis. Child. **8**: 385 (Dec.) 1914. Hess, A. F.: Infantile Scurvy, III, Its Influence on Growth (Length and Weight), ibid. **12**: 152 (Aug.) 1916.
4. Smith, A. H.: A Historical Inquiry into the Efficacy of Lime-Juice for the Prevention and Cure of Scurvy, J. Royal Army Med. Corps, February and March, 1919; Lancet **2**: 725 (Nov. 30) 1918.
5. Harden, A., and Zilva, S. S.: The Antiscorbutic Factor in Lemon Juice, Biochem. J. **12**: 259 (Oct.) 1918.
6. Harden, A.; Zilva, S. S., and Still, G. F.: Infantile Scurvy: The Antiscorbutic Factor of Lemon Juice in Treatment, Lancet **1**: 17 (Jan. 4) 1919.

There are indications that the potent fruit juices can be suitably preserved for clinical use. This is a matter of no little consequence in conserving products that do not come into the market with uniform frequency and at reasonable prices throughout the year. Harden and Robison[7] have reported from London that the antiscorbutic principle in orange juice is not volatilized when the juice is distilled at 40 C. under reduced pressure. By evaporation of orange juice at 40 C. under reduced pressure, it is possible to obtain a solid residue which possesses in a very high degree the antiscorbutic value of the fresh juice. This value is not appreciably diminished when the substance is kept in a dry atmosphere at room temperature during six months. The prolonged heating to which fruit juices are subjected in the usual processes for the manufacture of jams and jellies renders it unlikely that these would ever possess any considerable antiscorbutic value. Nevertheless, Harden and Robison have found that by the use of the newer extremely rapid commercial processes of concentration without the application of high temperatures, fruit jellies can be prepared (from the apple, for example) which are by no means devoid of antiscorbutic potency, though this is of a different order from that characteristic of the orange and lemon. Surely there can no longer be any excuse for the failure to avert infantile scurvy, even when fresh, unheated milk is not available.

THE PHYSICAL EXAMINATION OF THE FIRST MILLION DRAFT RECRUITS

A recent bulletin from the Surgeon-General's Office discusses the methods followed and the results secured in the physical examination of the first million draft recruits. The initial selected draft of 1917 was the first opportunity that this country had had in half a century to make a census of the physical constitution of its people. It is doubtful whether any physical survey in the history of the country is comparable to it. Approximately 10,000,000 men from 21 to 30 years of age were registered. Of these, 2,510,000 were examined physically by the local draft boards prior to Dec. 15, 1917. Of this number, 730,000, or approximately 29 per cent., were rejected on physical grounds. Between Dec. 15, 1917, and Sept. 11, 1918, 3,208,446 men were examined by local draft boards. Out of these two groups, approximately a million men were sent to the mobilization camps and there reexamined. The results of this second examination of the million draft recruits are recorded in this report. The Surgeon-General's Office announces that a report will be published later, containing all the information concerning the men accepted and sent to camp, those rejected by the local boards and those discharged from the army for disability.

This material naturally involves an enormous amount of detail. Some general conclusions, however, can be made. While reports from the different camps naturally varied considerably on account of the variation in ideals of the physical examining boards, it is possible to show that the incidence of particular defects and diseases varied in different sections of the country; for instance, these figures show strikingly the large prevalence of goiter in the region of the Great Lakes and the Northwest. Another striking fact is the overwhelming predominance of flatfoot as a physical defect. This condition was found in the ratio of 177.45 per thousand, or nearly eight times as frequently as any other defect. Twenty-two per cent., or more than one fifth of the rejections, were caused by a mechanical defect such as flatfoot, defects in the bones and joints, hernia, etc.; 15 per cent. of rejections were on account of imperfections of the sense organs; 13 per cent. were due to defects in the cardiovascular system; 12 per cent. to nervous and mental troubles; 10 per cent. were rejected on account of communicable diseases, almost entirely tuberculosis and venereal diseases; 8.5 per cent. were rejected because of developmental defects, and 6 per cent. on account of skin diseases and imperfection of the teeth. The comparison between men coming from rural and urban communities is also interesting. The local boards rejected from certain selected urban districts 21.68 per cent., and from rural districts 16.89 per cent. The total number of defects found in urban recruits was 38.3 in each hundred, while the defects among rural recruits were 33.3 per hundred. While flatfoot is the greatest defect noted, the amount of flatfoot reported from the Southern states is markedly less than that from the Northern states. Probably the mildness of the climate and the general custom of negroes and boys—especially among the rural classes—going barefoot is responsible for the better development of the feet and consequently for the smaller percentage of flatfoot in the South. Men from the large cities show much greater proportion of hernia than do men from the rural districts. Venereal diseases are found predominant in the Southern states, while the Northwest has a much lower percentage than any other section of the country. Defective vision is found more commonly among recruits from New England and New York City than from the Central states. Trachoma is more common among the recruits from Kentucky, Indiana, Illinois and Missouri than from the other states. Varicose veins are especially common in Minnesota and Wisconsin and the mountainous regions of the extreme Northwest. Underweight was found more commonly in the Western and Northwestern states than elsewhere. Defective physical development was found in the New England states to an unusual degree. Men from the cities showed 30 per cent. more defective vision than men from the country. Otitis media is about 60 per cent. more common in the cities than in the country, while

7. Harden, A., and Robison, R.: The Antiscorbutic Properties of Concentrated Fruit Juices, J. Royal Army Med. Corps, January, 1919.

mitral insufficiency is 60 per cent. more common in the country than in the city. Chronic alcoholism and drug addiction are much more common in the city than in the country. Defects of vision are in direct ratio to the size of the cities. Valvular heart disease is, speaking roughly, inversely proportionate to the density of the population.

The report contains more than 500 pages of tables, charts and plates, giving all the details for the million men, classified by states, by defects and graphically. By the statistical method it gives a new insight into the physical status of our young men.

Current Comment

INCIDENCE OF CARCINOMA OF TONGUE AND LIP FIFTY YEARS HENCE

In his recent Bradshaw lecture, Mr. D'Arcy Power[1] reviewed the salient facts regarding the history of cancer of the tongue and ventured the assertion that, fifty years hence, we shall see an enormous increase in the incidence of this disease, and that it will become relatively as common among women as among men. The grounds for this assertion are rather interesting. No one is bold enough to claim knowledge of the basic cause of cancer; nevertheless, we are all aware that cancer is much more likely to appear under certain conditions than others, and that by the use of certain agents, as, for instance, the roentgen ray, we can induce cancer almost at will. To a limited extent, therefore, one predisposing and exciting cause of cancer has been discovered, in the form of appropriate types of chronic irritation. Cancer of the tongue among lower animals is rare, there being only about five cases on record. Power presents evidence to show that, up to the time when syphilis, the use of tobacco, and the excessive, widespread abuse of alcohol were introduced, the incidence of carcinoma of the tongue in the human family did not exceed that at present found among lower animals. Carious teeth are probably without great significance. Examination of a multitude of skulls reveals the incidence of caries of the teeth among the ancient Romans in Britain to have been on a par with that among the present inhabitants of London; yet cancer of the tongue is a disease of modern life. When syphilis became rampant, lesions of the mouth, of course, greatly increased in frequency; yet cancer remained uncommon. It was only when the habit of smoking tobacco became firmly established that the incidence of buccal cancer showed a sharp increase. The frequency with which cancer arises from syphilitic scars in the mouth has been frequently commented on. Without discussing further the evidence produced, it may be stated that, from the historical standpoint, syphilis appears to be the great predisposing cause of buccal cancer, and chronic irritation, particularly that due to smoking, the great exciting cause. In spite of the propaganda against venereal disease, there is as yet no reason to suppose that the incidence of syphilis will show any substantial decline during the next half century, while the smoking habit is yearly becoming more widespread, especially among women. Cancer of the tongue and lip has increased threefold in the past thirty years. In view of the facts as stated, the incidence of buccal cancer fifty years hence becomes, indeed, a matter of interesting speculation.

1. Power, D'Arcy: On Cancer of the Tongue; The Bradshaw Lecture, 1918, Brit. Jour. Surg. 6: 336 (Jan.) 1919.

JACOBI AS A REVOLUTIONIST

As we stated last week, Abraham Jacobi was one of the well known "forty-eighters." The story of Carl Schurz as a revolutionist is familiar to many, while that of Jacobi, his dearest friend, has yet to be told in all its details. Schurz relates that in 1850 he first met Jacobi, then a student of medicine at Bonn and a "zealous democrat," and adds that later in the year Jacobi was "on his way to Schleswig-Holstein, to offer his services as a physician to our struggling brethren." For his activities in the cause of the revolution, Jacobi was accused of high treason—at the age of 21—and was confined in prisons at Cologne and Minden for about two years. On his release in 1853 he went to England, for it was reported that new charges were to be made against him; but he stayed there only a short time, and on the advice of Schurz moved to America, where he became a citizen as soon as possible. Sir William Osler once praised Dr. Jacobi for having refrained from writing for publication during the seven years following his graduation from the University of Bonn. Jacobi's comment on this was:

> He did not know that in nearly two years of those seven I never saw a square inch of paper or more than an infinitely small pencil which I concealed in my hair. When I saw the light again the French Republic had been destroyed nearly two years and the world had changed its shape.

THE CARE OF PUBLIC WATER SUPPLIES

It is not enough for a city to introduce a water supply from a pure source, or to install a good filtration plant for a slightly polluted water or to undertake to purify a contaminated water by chlorin treatment, and stop at that. Any one of these methods may be justified by local conditions, but unless the surroundings of the pure water supply be jealously guarded at all times, and unless the efficacy of purification methods is frequently tested and controlled, there is danger that the supply may come to grief through an "accident" which a not too superhuman sagacity might have prevented. In the case of a water supply, eternal vigilance is the price of safety. Two typhoid epidemics recently reported[1] may adorn the tale. In Xenia, Ohio, there were only two typhoid cases in 1917 and none in 1918 up to August 27. From that date, however, seventy-seven cases were reported. On investigation it seemed clear that the common source of the infection was the water supply, and it was soon discovered that, although a bleach solution had been carefully added to the water, an inferior bleaching powder

1. J. of the Am. Water Works Assn., June, 1919.

(though guaranteed to be of proper strength) had been used and that the solution was only about one fifth as effective as it should have been. The regular application of simple tests might have prevented the whole trouble. In Moline, Ill., also an explosive attack of typhoid occurred in 1918. Although the precise method of water contamination was perhaps less clear in this case than at Xenia, the investigation brought to light the fact that various contaminations of the pure water supply with a polluted source existed, and that through some carelessness the contaminated water had been allowed to mix with the pure water supply. "The chemist had opened the by-pass about 5 p. m. on June 21 and left it open until about 2 p. m. on June 22. During this period one of the sedimentation tanks had been cleaned, cutting the sedimentation period in two, which permitted water even poorer than usual to enter the clear well. A study of the records showed that the chlorin was on only a part of the time the water was being by-passed. Later information was secured from a diary kept by the chemist that the by-pass was also open during a part of June 19. During portions of this period little or no chlorin was being added. There is no doubt but that the typhoid outbreak in July resulted from the opening of the by-pass on the dates mentioned." One conclusion drawn from this "incident" was that "in a filter plant treating a polluted stream, water by-passes should under no conditions be tolerated. This means that the plant must be of ample capacity to supply sufficient filtered water at all times." With this conclusion there will be general agreement.

THE CAUSE OF WAR EDEMA

Early in the course of the war, when the food supply of the Central Empires began to be jeopardized, reports of unusual maladies became current in many of the countries affected. Among the forms of illness apparently associated with dietary shortcomings was a peculiar type of edema which came to be known as "war dropsy" or "war edema." Several hypotheses have been advanced in explanation of its occurrence. At first war edema was charged to undernutrition attributable to short rations. Presently, however, the disease seemed to be attendant on the lack of certain essential dietary components rather than a diminished intake of food as such. The increasing restrictions in the variety of food products consumed tended to lead to "one-sided diets." The suggestion was therefore soon ventured that lack of certain vitamins, notably the fat-soluble food accessory occurring in cream, butter, beef fat, fish oils and egg yolk, as well as green vegetables, was responsible for the appearance of the edema. Recent experimental studies by Kohman[1] at the Physiological Laboratory of the University of Chicago suggest, however, that "war dropsy" may be due to an insufficiency of protein in the diet, rather than to a vitamin deficiency. Thus, animals placed on rations low in protein, the latter being supplied by carrots alone, in numerous instances developed marked edema which manifested itself in various ways, sometimes with fluid in the pleural and peritoneal cavities, and sometimes with fluid collected subcutaneously, especially over the chest and about the forelegs. Weakness always occurred and usually loss of weight, aside from the gain due to accumulation of fluid in the tissues. Enrichment of the diet in protein averted such abnormalities.

1. Kohman, Emma A.: A Preliminary Note on the Experimental Production of Edema as Related to "War Dropsy," Proc. Soc. Exper. Biol. and Med. 16:121 (April 16) 1919.

BILL FOR A NATIONAL DEPARTMENT OF HEALTH

Elsewhere[1] appears an abstract of a bill creating a national department of public health. This bill, introduced by Hon. Joseph I. France, United States Senator from Maryland and Chairman of the Senate Committee on Public Health and National Quarantine, is one of the most comprehensive measures on this subject that has been prepared. Three bills creating a national department of health are now before Congress, each of them drafted on broader lines than those of previous years. The need of an adequate and efficient national department of health is more apparent today than ever before. Legislators, physicians and laymen are more than ever agreed as to its desirability. Exactly what form it will take remains to be seen; but if all those interested in better national health organization will cooperate, constructive legislation in this field will soon become a reality.

1. General News, this issue, page 282.

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending July 18, there were 11,755 officers in the Medical Corps, a decrease of 633 from the previous week. The Medical Reserve Corps contained 2,949 officers. The total number of physicians discharged since the beginning of the war is 21,232.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

NOTE.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel; Col., colonel, and B. G., brigadier-general.

ALABAMA

Alexander City—Griffin, J. O. (L.)
Anniston—Woodruff, L. H. (C.)
Birmingham—Board, O. P. (M.)
Drake, C. H. (L.)
Pate, E. E. (L.)
Carrollton—Zuber, T. L. (L.)
Ensley—Sparks, D. H. (C.)
Gadsden—Greet, T. Y. (M.)

ARIZONA

Tucson—Goothelf, E. J., Jr. (L.)
Yuma—Jacobs, L. (C.)

ARKANSAS

Little Rock—Proctor, F. L. (M.)
Prescott—Hesterly, J. B. (L.)
Warren—Sherrill, J. J. (M.)

CALIFORNIA

Berkeley—Meads, A. M. (M.)
King City—Bullard, C. T. (L.)
Los Angeles—Boyer, J. I. (C.)
Grant, W. L. (M.)
Holleran, W. M. (C.)
Opp, P. A. (L.)
Los Angeles—Prince, R. W. (C.)
Schenck, G. F. (L.)
Severson, J. M. (C.)
Smith, B. (C.)
Wharton, C. G. (M.)
Pomona—Swindt, J. K. (M.)
Porterville—Willey, H. J. (C.)
Redlands—Burke, W. P. (C.)
Sacramento—Crawford, J. W. (C.)
San Francisco—Miller, H. E. (C.)
Norton, A. A. (L.)
Seidenfeld, L. G. (M.)
Washburn, W. W. (C.)
Williams, H. D. (L.)
Zimmerman, H. (C.)
Weaverville—Fields, D. B. (C.)
Whittier—Wilson, H. P. (C.)

COLORADO

Denver—Charles, R. L. (L.)
Chase, P. M. (M.)
Knoch, N. H. (L.)
Lunt, L. K. (M.)
Oak Creek—Kracaw, F. C. (C.)
Pueblo—Brown, E. H. (C.)
Stoneham—Turner, F. C. (C.)

CONNECTICUT

Bristol—Woisard, J. I. (C.)
Granby—Irwin, V. J., Jr. (C.)
Hartford—Climan, M. (L.)
Hurwitz, H. M. (L.)
Stidger, J. R. (C.)
Torrington—Hoffman, W. E. (C.)
Wallingford—Sheehan, M. T. (L.)
West Haven—St. Lawrence, A. J. (L.)
Westport—McLaury, F. H. (C.)

DELAWARE

Ashland—Higgins, R. D. (L.)
Laurel—Elliott, J. R. (C.)

DISTRICT OF COLUMBIA

Washington—Bingman, C. E. (C.) (C.)
Bloom, R. H. (M.)
MacDonald, A. M. (L.)
Moffitt, H. W. (L.)
Morgan, F. P. (C.)
Prentiss, D. W. (C.)
Reichelderfer, L. H. (L. C.)

FLORIDA

Chattahoochee — Spiers, W. H. (L.)
Hosford—Wilhoit, S. E. (C.)
Jacksonville—May, R. D. (L.)
Pensacola—Mixon, J. A. (M.)

GEORGIA

Alapaha—Moye, T. R. (L.)
Atlanta—Brewer, A. F. (L.)
Calhoun, F. P. (M.)
Meeks, J. L. (L.)
Upchurch, W. A. (M.)
Camak—Lazenby, E. K. (C.)
Cedartown — Richardson, M. S. (L.)
Columbus—Dykes, A. N. (C.)
De Soto—Bagley, G. W. (L.)
Macon—Selden, E. (C.)
Walker, D. D. (L.)
Milledgeville—Allen, W. H. (L.)
Price, J. A. (L.)

IDAHO

Boise—Titus, W. S. (M.)
Kellogg—Kennett, G. H. (L.)
Moscow—Barrows, F. L. (C.)

ILLINOIS

Belleville—Dew, W. A. (C.)
Carbondale—Mitchell, J. M. (C.)
Centralia—Gambill, W. H. (C.)
Chicago—Bailiff, O. (L.)
Bay, F. H. (C.)
Bergholt, E. S. (C.)
Blackburn, P. M. (L.)
Byrne, M. W. K. (C.)
Cliver, J. M. (C.)
Dahl, E. O. (L.)
Chicago—Dunlavy, H. C. (L.)
Eastman, L. K. (L.)
Friedman, J. C. (M.)
Friedrich, H. C. (L.)
Ginn, V. (L.)
Grayston, J. T. (C.)
Harris, U. B. (C.)
Heap, W. A. (C.)
Howard, W. H. (L.)
Kitterman, P. G. (C.)
Lando, M. (L.)
Light, L. S. (C.)
Lohman, O. (C.)
Lowry, N. H., Jr. (L.)
Mars, H. F. (L.)
Mayers, L. H. (M.)
Myers, J. T. (L.)
Millikin, F. M. (C.)
Morris, E. A. (C.)
O'Connell, J. T., Jr. (L.)
Perry, H. S. (L.)
Robertson, A. M. (C.)
Rohlee, L. H. (M.)
Roos, E. C. (L.)
Rudolph, L. (M.)
Smith, S. A. (L.)
Straus, H. W. (C.)
Turner, L. L. (L.)
Twiss, H. L. (L.)
Watterson, W. H. (M.)
Wendt, A. C. (C.)
Cicero—Bennewitz, A. H. (C.)
Ostrowski, F. G. (L.)
Colchester—Harrison, B. A. (C.)
Crete—Blim, W. C. (L.)
East St. Louis—Spitze, E. C. (C.)
Mansfield—Young, E. Y. (C.)
Marshall—Haslitt, P. P. (C.)
Mattoon—Bryan, T. A. (C.)
Maywood—O'Shea, J. W. (C.)
Monticello—McDeed, W. G. (C.)
Mt. Vernon—Gilmore, W. H. (C.)
New Baden—Schnell, B. C. C. (M.)
Oregon—Sheets, H. H. (C.)
Pana—Eberspacher, F. J. (C.)
Paxton—Kelso, J. W. (C.)
Peoria—Causey, F. A. (L.)
Garrett, E. A. (L. C.)
Rockford—Green, J. A. (C.)
Rock Island—Rimmerman, A. B. (M.)
Springfield—Godfrey, E. B. (M.)
Tuttle, H. H. (L. C.)

INDIANA

Bedford—Guthrie, M. B. (L.)
Bloomfield—Cook, T. R. (C.)
Burnett Creek—McBeth, W. (C.)
Connersville—Smelser, H. W. (L.)
Corydon—Amy, W. E. (L.)
Danville—Grimes, J. H. (C.)
Delphi—Crampton, C. C. (C.)
Forest—Compton, S. M., (L.)
Fort Wayne—Senseny, H. M. (L.)
Gary—Craig, I. A. (C.)
Indianapolis—Beaver, J. R. (C.)
Carter, L. D. (Col.)
Cottingham, E. E. (C.)
Ottinger, R. C. (L.)
Smith, J. M. (C.)
Strickland, C. (C.)
Terre Haute—Young, J. R. (C.)
Wabash—Jewett, E. E. (M.)
Washington—Wadsworth, H. C. (M.)
West Lafayette—Davisson, C. V. (L.)
Williams—McFarlin, J. T. (C.)
Winchester—Brenner, I. E. (C.)
Robison, J. S. (C.)

IOWA

Fort Madison—Walker, J. R. (C.)
Hancock—Standeven, J. F. (C.)
Hedrick—Porter, J. A. (L.)
Independence—Battey, P. B. (C.)
Iowa City—Smith, H. E. (C.)
Keokuk—Rankin, W. (M.)
Marshalltown—Molison, R. C. (C.)
Milo—Bowie, L. L. (C.)
Nevada—Houston, B. (C.)
Norway—Simpson, C. E. (L.)
Oelwein—Lechey, F. P. (C.)
Prescott—Clary, W. H. (L.)
Rowan—Gordon, W. N. (L.)

KANSAS

Ashland—Nyberg, M. O. (C.)
Atchinson—Hemer, T. E. (C.)
Centerville—Porter, G. F. (C.)
Climax—Hendricks, H. L. (L.)
Clyde—Bebo, M. L. (C.)
Denison—Wilmoth, L. L. (C.)
Emporia—Morgan, D. L. (L.)
Iuka—Boyce, S. F. (C.)
Junction City—Carr, W. A. (M.)
Kansas City—Hauser, J. F. (C.)
Rabin, J. H. (L.)
Lawrence—Chambers, H. L. (M.)
Lenexa—Nesselrode, C. C. (M.)
Marysville—Willson, E. L. (C.)
Meriden—Preston, O. R. (L.)
National Military Home—Adams, S. (C.)
Oakley—Miller, C. M. (C.)
Onaga—Koentz, C. H. (C.)
Perth—Vincent, H. A. (L.)
Sabetha—Wrightman, F. E. (C.)
Severy—Hodges, W. A. (C.)
Thayer—Reece, H. E. (C.)
Waldo—Dreher, H. S. (C.)
Wichita—Hissem, R. W. (M.)
Schlegel, E. H. (L.)

KENTUCKY

Charley—Hayes, L. S. (C.)
Fort Thomas—Crawford, C. (L.)
Fulton—Crafton, G. A. (L.)
Harrodsburg—Price, C. P. (C.)
Heath—Morris, C. (C.)
Irvington—Meador, R. W. (L.)
Kirksville—Combs, W. G. (L.)
Louisville—Gribble, B. G. (L.)
Hale, T. F. (C.)
Henderson, E. L. (M.)
Zimmerman, B. F. (M.)
Newport—Okrent, S. (L.)
Regina—Flanary, M. D. (L.)
Rockfield—Moss, R. L. (C.)
Vanceburg—Graham, C. L. (C.)
White Star—Henry, O. P. (L.)
Woodburn—Davis, B. P. (L.)

LOUISIANA

Bogalusa—Brister, T. M. (L.)
Melrose—Kelly, J. L. (M.)
Melville—Williams, L. J. (M.)
New Orleans—Locascio, J. L. (C.)
Murphy, D. J. (C.)
Weil, A. I. (C.)
Rayville—Sartor, J. C. (C.)
Shreveport—Willis, J. C., Jr. (C.)
Ward—Whitley, G. G. (C.)

MAINE

Bangor—Thompson, J. B. (C.)
Clinton—Newcomb, F. H. (L.)
Fairfield—Sturgis, K. B. (L.)
Limerick—Carpenter, L. W. (L.)
Millinocket—Bryant, C. S. (M.)
Portland—Carmichael, F. E. (C.)
Gray, J. E. (C.)
Moore, R. B. (M.)
Weeks, D. (L.)
Vinal Haven—Brown, F. F. (C.)

MARYLAND

Baltimore—Anderson, F. B. (C.)
Fargo, L. K. (C.)
Pelton, J. S. (C.)
Joslin, C. L. (C.)
Levy, M. (C.)
Martin, F. (M.)
Spruit, T. P. (M.)
Elkton—Mitchell, H. A. (L. C.)
Polesville—Williams, F. T., (C.)
Salisbury—Pilchard, S. N. (L.)
State Sanatorium—Snyder, S. (L.)

MASSACHUSETTS

Arlington Heights — Ring, A. H. (C.)
Beverly—Johnson, P. P. (L. C.)
Blandford—Shurtleff, P. A. (L.)
Boston—Ayer, J. B., Jr. (C.)
Binney, G. H., Jr. (L.)
Clymer, G. (C.)
Cox, O. F., Jr. (L.)
FitzSimmons, H. J. (C.)
Gooding, J. H. (L.)
Hasaman, D. M. (M.)
Holland, W. T. (L.)
Jones, T. P. (C.)
Keenan, J. A. (L.)
Kreutzmann, H. E. (L.)
McCrudden, F. H. (C.)
Porter, C. T. (C.)
Shapira, A. A. (C.)
Spear, L. W. (C.)
Brockton—Lawrence, J. H. (C.)
Moore, G. A. (C.)
Pettey, J. A. (C.)
Brookline—Cushing, A. A. (L.)
Cambridge—Bissell, F. F. (C.)
Eustis, R. S. (C.)
McCabe, F. H. (M.)
Murphy, J. J. (M.)
Lynn—Breed, N. P. (M.)
Malden—Howard, H. J. (C.)
Methuen—Ganley, E. H. (L.)
Needham—Pease, W. (C.)
New Bedford—Gennert, J. (L.)
Johnson, E. S. (C.)
O'Brien, D. P. (C.)
Roderick, A. J. (L.)
Newton—Brady, C. N. (L.)
Rattey, A. A. (L.)
North Abington—Bishop, W. A. (L.)
Springfield—Lynch, C. F. (L. C.)
Rice, A. G. (C.)
Rochford, R. A. (C.)
Uxbridge—Ledbury, J. W. (C.)
Walthan—Taylor, A. A. (L.)
Westborough—Tillson, W. A. (L.)
Worcester—Lincoln, G. C. (M.)

MICHIGAN

Ann Arbor—Ganzhorn, E. C. (L.)
Holcombe, H. M. (C.)
Ideson, E. S. (L.)
Treadgold, G. D. (L.)
Augusta—Weeks, R. E. (L.)
Battle Creek—Kolwood, T. (L.)
Brown City—Waltz, J. F. (L.)
Detroit—Barrett, W. D. (L.)
Bank, H. A.
Healy, G. H. (L.)
Kennedy, C. S. (L.)
Lace, H. A. (C.)
Pinney, L. (C.)
Sellers, C. W. (L.)
Escanaba—Long, H. W. (C.)
Flint—Ballard, C. S. (C.)
Grand Rapids—Brotherhood, J. S. (C.)
Holland—Westrate, W. (L.)
Howell—Richeson, V. N. (C.)
Ionia—Robertson, P. C. (C.)
Iron River—Liefert, W. C. (C.)
Ironwood—Maccani, W. L. (L.)
Midland—Johnson, J. H. (C.)
Muskegon—Colignon, C. M. (C.)
Port Huron—Patterson, D. W. (L.)
Wakefield—MacPhail, D. E. (L.)

MINNESOTA

Ashby—Randall, A. M. (C.)
Atwater—Anderson, L. W. (L.)
Chatfield—Reynolds, H. W. (C.)
Minneapolis—Oden, R. J. E. (C.)
Thomas, G. J. (M.)
Rochester—Salaspa, T. L. (C.)
Weaver, S. D. (C.)
Slayton—Richardson, W. E. (C.)
St. Paul—Greene, C. L. (L. C.)
Waseca—Rudolf, A. J. (L.)

MISSISSIPPI

Hamilton—Darracott, L. W. (L.)
McLaurin—Rogers, F. A. (C.)
Reid—Priest, R. E. (C.)
Starkville—Ricks, F. L. (C.)
Vicksburg—Sproles, H. F. (C.)

MISSOURI

Belle—Johnson, G. C. (L.)
Bloomfield—Wilson, J. (C.)
Brookfield—Jenkins, C. E. (C.)
Butler—DeWeese, E. R. (L.)
Cape Girardeau—Williams, P. R. (C.)
Carthage—Gentry, W. H. (C.)
Clarence—Hall, S. M. (C.)
Doniphan—Hume, J. R. (C.)
Excelsior Springs—Kirkham, A. (L.)
Green Ridge—Heibner, E. A. (L.)
Kansas City—Bird, J. R. (L.)
Cavaness, E. W. (C.)
Getelson, (C.)
Hedge, M. O. (C.)
Holbrook, W. F. (C.)
Johnson, A. N. (M.)
McCarthy, H. J. (M.)
Stofer, H. S. (C.)
St. Louis—Alexander, R. D. (L. C.)
Bailey, F. W. (M.)
Blair, V. P. (L. C.)
Burns, R., Jr. (L. C.)
Fitzporter, A. L. (L.)
Hess, E. E. (L.)
Mestemacher, L. H. (C.)
Sante, L. (L.)
Sellers, C. L. (C.)
Steinmann, W. H. (C.)
Sullivan, P. (C.)
Unterberg, H. (M.)
Wite, J. B. (L.)
Summerville—Wallen, L. H. (C.)

MONTANA

Bozeman—Gibson, L. K. (C.)
Great Falls—McCauley, A. M. (C.)
Jordan—Baker, D. E. (C.)
Missoula—Hobson, J. D. (L.)
Nashua—Lomas, J. A. (L.)
Rudyard—Schulberg, P. A. (L.)
Simms—Smith, C. L. (L.)

NEBRASKA

Fairbury—Hawes, W. J. (L.)
Florence—Avery, H. H. (L.)
Kearney—Rose, W. E. (L.)
Lincoln—Moyer, T. C. (C.)
Omaha—Leary, W. J. (M.)
Van Buren, F. A. (M.)
Papillion—Becker, W. C. (L.)
Rushville—Crawford, W. H. (C.)
Wausa—Hansen, O. T. (C.)

NEVADA

Elko—West, C. W. (M.)
Reno—Roller, W. C. (M.)

NEW HAMPSHIRE

Franconia—Johnson, H. L. (M.)
Franklin—Woodman, J. B. (L. C.)
Manchester—Sullivan, D. J. (L.)
Wheat, A. P. (M.)
Nashua—Congdon, C. E. (M.)
Sutton—Clough, W. P. (L.)
Walpole—Craig, W. P. (C.)

NEW JERSEY

Asbury—Potts, G. W. (L.)
Atlantic City—Bender, P. B. (M.)
Uzzle, E. F. (L.)
Jersey City — Sherwood, W. A. (L. C.)
Kearny—Dukes, H. R. (C.)
Merchantville—Cohan, E. N. (L.)
Morristown—Lathrope, G. H. (L. C.)
Newark—Crawford, D. H. (C.)
Gauch, W. (C.)
Horwitz, P. (L.)
Schramm, J. A. (C.)
New Brunswick—Hilliard, A. G. (L.)
Passaic—Dwyer, H. E. (C.)
Jahn, A. G. (C.)
Paterson—Clay, T. A. (M.)
William, V. W. (M.)
Perth Amboy—Cottrell, J. G. (L.)
Plainfield—Morris, T. M. (L.)
Rutherford—Garrison, N. S. (C.)
Reynolds, E. C. (C.)
South Orange—Dane, C. M. (M.)

NEW YORK

Albany—Draper, E. L. (M.)
Heslin, J. E. (C.)
Mount, L. B. (C.)
Beacon—Moore, J. W. (M.)
Brooklyn—Bass, B. B. (L.)
Bell, H. G. (C.)
Cohen, J. N. (L.)
Feuster, H. J. (L.)
Fisher, S. L. (M.)
Goldman C. (L.)

Brooklyn—Holley, J. (M.)
Lauderutcher, I. D. (C.)
Mansulkin, G. (L.)
Mensch, M. (L.)
Parnass, S. (L.)
Ravich, A. (L.)
Smith, W. S. (C.)
Tanner, E. K. (M.)
Topkins, S. (C.)
Zamkin, H. O. (C.)
Buffalo—Anderson, L. F. (L.)
Bolton, P. M. (C.)
Brumberg, J. (L.)
Kummer, C. P. (C.)
Lojacono, S. C. (L.)
Reimann, E. P. (L.)
Sullivan, J. C. (L.)
Yellen, H. S. (L.)
Cohoes—Seaport, L. B. (L.)
Eastwood—Dunning, R. H. (L.)
Elmhurst—Krauss, G. (L.)
Elmira—Breese, F. F. (C.)
Granville—Munson, W. L. (L.)
Highland Falls—McMenamin, T. D. (M.)
Keeseville — Holcombe, F. M. (L. C.)
Kingston—Loughran, E. D. (C.)
Livingston Manor—Bourke, V. G. (C.)
Mt. Vernon—Mills, N. (L.)
New Rochelle — Hendrickson, C. W. (C.)
Read, C. A. (C.)
New York—Barker, J. C. (L.)
Blank, M. L. (C.)
Brill, A. A. (C.)
Brodie, B. (L.)
Bryant, W. S. (L. C.)
Carr, M. L. (L. C.)
Casseber, H. A. (M.)
Conley, D. S. (M.)
Curtin, T. H. (M.)
Daly, D. J. (L.)
Davis, T. G. (C.)
Dolan, E. J. (L.)
Fuchs, M. L. (L.)
Groff, P. A. (C.)
Hartwell, J. A. (M.)
Hyman, H. T. (L.)
Jennings, J. E. (L. C.)
Judkowitz, H. (C.)
Keller, J. A. (L.)
Lamb, A. R. (M.)
LeComte, J. R. (M.)
Marvel, K. G. (L.)
Matus, D. (L.)
Meader, F. M. (M.)
Nelson, F. L. (C.)
Ordway, W. H., Jr. (L.)
Orenstein, A. (L.)
O'Rourke, R. E. (L.)
Owens, H. F. (L.)
Palmer, A. (L.)
Purdy, H. L. (C.)
Rhett, W. (C.)
Schaaf, E. A. (C.)
Schaeffer, F. W. (C.)
Shapire, L. L. (L.)
Sheridan, J. H. (M.)
Shibley, J. S. (C.)
Shlimbum, S. (C.)
Smith, L. H. (L.)
Smith, T. A. (C.)
Tannenbaum, P. (L.)
Thaxton, G. B. (L.)
Walter, M. R. (C.)
Ware, E. R. (L.)
Weeks, W. W. (M.)
Williams, C. M. (L. C.)
Willis, G. S. (C.)
Wilson, B. (L.)
Wilson, H. J. (L.)
Wurthmann, J. W. (L.)
Yudkowsky, P. (L.)
Niagara Falls—Gallagher, W. E. (L.)
Wisch, C. A. (L.)
Northport—Travis, W. C. (C.)
Olean—Atkins, L. J. (L.)
Van Campen, B. (L. C.)
Oneonta—Dickinson, W. G. (C.)
McMenanmin, P. (L.)
Oswego—Galvin, W. J. (L.)
Perry—Houghton, M. O. (C.)
Port Chester—Ruben, B. D. (C.)
Port Jervis—MacAllister, L. H. (C.)
Potsdam—Fuller, F. J. (C.)
Poughkeepsie—Cotter, L. E. (L.)
Rodgers, A. (L.)
Riverdale—Dykman, A. B. (C.)
Rochester—Almy, M. A. (C.)
Barber, L. J. (C.)
Bondi, A. (L.)
Melen, D. R. (L.)
Nacey, L. J. (M.)
Whipple, H. C. (C.)
Rome—Stuart, L. (C.)
Schenectady—Doig, R. B. (C.)
South Onondaga—Gak, H. E. (L.)
Syracuse—Potter, P. S. (C.)
Troy—Benson, A. W. (C.)
Warwick—Beattie, J. H. (M.)
White Plains—Briggs, F. S. (L.)
Holden, J. F. (L.)
Lawrence, W. A. (L. C.)
Yonkers—Betts, B. H. (M.)

NORTH CAROLINA

Asheville—Jordan, C. S. (C.)
Ayden—Dixon, G. G. (L.)
Bethel—Garrenton, C. (C.)
Charlotte—Petser, L. M. (C.)
Wishart, W. E. (C.)
Durham—Watkins, G. T. (C.)
Farmville—Moseley, H. P. (C.)
Garland—Sloan, W. H. (L.)
Goldsboro—Spicer, R. W. (C.)
Greensboro—Starr, H. F. (C.)
Kittrell—Swindell, F. O. (C.)
Lowell—Patrick, C. F. (C.)
Maysville—Sherr, C. (L.)
Polkton—Boyce, J. M. (C.)
Sanatorium—McBrayer, R. A. (C.)
Star—Dameron, W. H. (L.)
Sunburst—Sturdivant, O. B. (L.)
Tarboro—Green, W. W. (M.)
Royster, T. H. (C.)
Wilmington—Robertson, J. F. (C.)

NORTH DAKOTA

Egeland—O'Brien, W. P. (L.)
Fargo—Rindlaub, P. J., Jr. (C.)
Grand Forks—Meland, O. N. (M.)
Litchville—Platou, C. A. (L.)
Minot—Pence, J. R. (C.)
Onemose—Ginsberg, W. (C.)
Warwick—Carter, J. A. (M.)

OHIO

Akron—Barcmore, H. R., Jr. (C.)
Alexandria—Bierbower, W. D. (L.)
Ashland—Patton, C. C. (L.)
Barberton—Rodenbaugh, H. A. (C.)
Bellefontaine—Stincheomb, W. G. (L.)
Cincinnati—Brown, H. A. (C.)
Curl, R. P. (L.)
Kaman, H. F. (L.)
Rupp, D. (L.)
Cleveland—Andrews, F. L. (C.)
Bray, C. M. (L.)
Crouch, C. (C.)
Euler, W. A. (L.)
Glass, G. F. (M.)
Kimmel, R. R. (C.)
Mayer, C. C. (L.)
Mylott, E. C. (L.)
Osmond, J. D. (C.)
Sanford, H. L. (L. C.)
Schlink, H. C. (L.)
Columbus—Hoskins, G. O. (L.)
Keiser, J. G. (C.)
Laufersweiler, L. F. (L.)
Dayton—McCally, A. W. (C.)
Payne, P. C. (L.)
Woodruff, R. L. (L.)
Findlay—Hartman, J. V. (M.)
Frankfort—Smith, J. B. (C.)
Greenville—Sutter, R. H. (C.)
Lancaster—Axline, C. G. (M.)
Mantau—Knowlton, E. H. (C.)
Marietta—McMillan, W. G. (M.)
Marion—Mosser, E. E. (C.)
Mechanicsburg—Whitaker, H. O. (C.)
Metamore—Lathrop, W. L. (L.)
Millersburg—Hostetter, A. R. (C.)
Putnam, I. S. (C.)
Scott—Hanna, M. (C.)
Thurston—Fishel, C. R. (L.)
Toledo—Carr, W. (L. C.)
Pilliod, F. W. (C.)
Wapakoneta—Campbell, T. A. (L.)
Weston—Wetherill, J. C. (L.)
Youngstown—Painter, A. M. (M.)

OKLAHOMA

Alva—Bilby, G. N. (L.)
Clinton—Darnell, E. F. (L.)
Davenport—Nickell, U. E. (L.)
Enterprise—Billington, J. J. (C.)
Frederick—Howell, C. H. (C.)
Hugo—Maier, H. W. (L.)
Hulen—Burnett, B. H. (L.)
Lawton—Janney, J. G. (M.)
Oklahoma—Bradley, H. C. (L.)
Holliday, J. H. (M.)
Maxwell, J. H. (C.)
Soper—Hargraves, T. A. (L.)
Tryon—Jansing, J. H. (C.)
Wagoner—Moore, C. C. (L.)

OREGON

Carlton—Morrison, A. D. (L.)
Marshfield—Smith, H. E. (C.)
Portland—Anderson, E. E. (L.)
Cahill, R. W. (L.)
Stewart, J. A. (C.)
Ziegelmann, E. F. (M.)

PENNSYLVANIA

Altoona—Kaufman, D. (M.)
Braddock—Sinko, H. E. (C.)
Butler—McCandless, D. L. (L.)
Cambridge Springs—Mullin, C. E. (C.)
Chatham—Moore, L. C. (C.)
Coraopolis—Brown, S. A. (L.)
Crèson—Brachman, D. S. (C.)
Cumberland Valley—Stoner, A. Z. (M.)
Dalton—Vail, H. L. (M.)
Doylestown—Sweeney, J. J. (M.)
Elizabethville—Romberger, F. T. (C.)
Ellwood City—Iseman, C. M. (M.)
Ford City—Robinsteen, C. H. (L.)
Franklin—Tibbens, C. E. (M.)
Glenlyon—Thomas, A. M. (C.)
Greensburg—Blackburn, G. R. (L.)
Hamburg—Robinbold, A. M. (M.)
Harrisburg—Perkins, R. L. (M.)
Haverford—Sharpe, J. S. (M.)
Irwin—Caldwell, J. D. (C.)
Jeanette—Doncaster, W. T. (L.)
Johnstown—Hill, H. L. (C.)
Mayer, L. H., Jr. (C.)
Langhorne—Ridge, S. L. (M.)
Marcus Hook—Stockton, H. T. (C.)
McKees Rocks—Goodrich, H. J. (L.)
Meadville—Brophy, E. E. (L.)
Skelton, W. E. (C.)
Midland—Hunter, L. L. (L.)
Monaco—Wagner, J. H. (L.)
Mont Alto—Mulligan, A. J. (L.)
New Castle—Kooper, J. R. (M.)
New Kensington—O'Hara, W. T. (C.)
Oakmont—Edgar, J. C. (M.)
Palmertown—Hersh, H. E. (C.)
Perkasie—Strunk, D. H. (L.)
Philadelphia—Aitken, C. S. (C.)
Beckley, A. G. (M.)
Bennett, W. A. (L.)
Bishop, A. (C.)
Burns, A. A. (M.)
Carmany, H. S. (C.)
Chapin, C. E. (C.)
Deal, J. (L.)
Haigh, J. E. (L.)
Hoyt, D. M. (L. C.)
Ingle, H. B. (C.)
Keiser, E. E. (M.)
Killen, A. (L.)
Patten, C. A. (C.)
Weber, C. H. (M.)
Willard, D. P. (M.)
Phoenixville—Rulon, S. A., Jr. (C.)
Pittsburgh—Bigoney, C. F. (L.)
Binkley, O. H. (L.)
Collins, J. H. M.
Crookston, W. J. (Col.)
Gilmore, J. L. (L.)
Kirk, D. I. (L.)
Lambert, S. E. (M.)
Logan, J. S. (L.)
Mabon, T. M. (L.)
Maxwell, W. C. (C.)
McCague, E. D. (C.)
Patterson, H. B. (M.)
Reynolds, F. D. (C.)
Vankirk, V. E. (C.)
Pittston—Nicholson, C. E. (L.)
Portage—Yearsley, I. T. (L.)
Port Carbon—Conrad, J. W. (C.)
Pottsville—Bergstein, A. M. (L.)
Reading—Golding, E. E. (L.)
Strasser, C. (L.)
Sayre—Fisk, H. S. (M.)
Scranton—Keller, W. E. (L. C.)
Rebhorn, E. H. (L.)
Shamokin—Saul, C. (C.)
Sharpsburg—Hall, S. K. (C.)
Shellburg—Anderson, J. C., Jr. (C.)
Stroudsburg—Rosenkrans, C. B. (C.)
Uniontown—Baltz, S. A. (M.)
Luman, C. M. (M.)
Waynesburg—Thom, F. S. (C.)
West Chester—Farrell, A. (M.)
Wilkes-Barre—Baird, T. M. (M.)
Griffith, M. E. (C.)
Smith, H. A. (C.)
Williamsport—Leiger, J. G. (L.)
York—Smith, G. (C.)

RHODE ISLAND

Howard—Gannon, C. H. (L.)
Providence—O'Keefe, W. J. (L.)
Risk, W. A. (C.)

SOUTH CAROLINA

Anderson—Sanders, L. C. (C.)
Bennettsville—Strauss, D. D. (L.)
Charleston—Pitts, A. (C.)
Smith, W. A. (C.)
Chester—Thomas, H. B. (L.)
Columbia—Baron, C. W. (M.)
Rodgers, P. D. (M.)
Darlington—Coggshall, J. T. (L.)
Inman—Gibson, R. B. (L.)
St. Matthews—Raysor, H. C. (L.)
St. Stephen—Colson, J. D. (L.)
Sumter—Littlejohn, T. R. (L.)
Walhalla—Verner, J. D., Jr. (L.)

SOUTH DAKOTA

Milbank—McKenna, C. H. (M.)
Mitchell—Bobb, B. A. (M.)

TENNESSEE

Decatur—Arrants, W. R. (L.)
Frankewing—Johnson, W. J. (L.)
Halls—Brown, Y. S. (L.)
Johnson City—Moss, J. G. (M.)
Knoxville—Edwards, E. V. (C.)
Memphis—Carnes, W. A. (C.)
Coughlin, T. F., Jr. (C.)
Semmes, R. E. (C.)
Shea, J. J. (M.)
Vaughan, J. A. (C.)
Munford—Witherington, J. G. (L.)
Nashville—Hatcher, G. (C.)
Ravenscroft—Allison, G. M. (C.)
Stanton—Nash, W. B. (C.)

TEXAS

Alice—Perkins, M. J. (L.)
Britton—Nifong, H. D. (C.)
Dallas—Carruthers, F. W. (L.)
Colwick, J. T. (L.)
Jackson, W. W. (L.)
Dilley—Gates, E. F. (C.)
El Paso—Hendricks, C. M. (L. C.)
Galveston—Moore, T. F. (C.)
Honey Island—Bledsoe, J. A. (C.)
Houston—Fancher, R. M. (C.)
Meredith, W. P. (L.)
Mitchner, J. M. (L.)
White, J. (M.)
Kerens—Norwood, E. P. (C.)
Lancaster—Parks, C. C. (L.)
Luling—Francis, S. J. (M.)
Marlin—Hutchings, P. P. (L.)
Sewall, F. B. (L.)
Newcastle—Wilson, O. W. (C.)
Palestine—Dunlap, R. W. (L.)
Rotan—Smith, C. (C.)
Roschad—Chernosky, W. A. (C.)
San Angelo—McAnulty, J. F. (C.)
San Antonio—Hanson, W. S. (L.)
Kenney, N. J. (C.)
McManus, W. F. (M.)
Wyneken, H. O. (M.)
Sherman—Brown, H. L. (C.)
Tolar—Crawford, J. F. (C.)
Van Alstyne—Wolf, J. A. L. (C.)
Victoria—Hopkins, J. V. (L.)
Weinert—Cadenhead, J. F. (C.)

UTAH

Kaysville—Gardner, C. S. (M.)
Logan—Rush, W. A. (C.)
Ogden—Pugmire, L. R. (C.)
Salt Lake City—Alexander, R. J. (C.)
Vernal—Rich, H. E. (L.)

VERMONT

East Hardwick—Kinney, A. C. (C.)
Manchester Depot—Lovejoy, J. L. (C.)
North Troy—Flagg, R. S. (L.)
St. Johnsbury—Harvey, J. W. (C.)

VIRGINIA

Altavista—Board, J. A. (C.)
Ashland—Jordon, W. W. (C.)
Bena—Healy, M. W. (C.)
Berryville—Iden, C. H. (L.)
Buckingham—Tucker, P. E. (L.)
Charlottesville—Tennant, C. C. (L.)
Clifton Forge—Rucker, C. N. (C.)
Wysor, F. L. (C.)
Colonial Beach—Harrison, G. B. (C.)
Danville—Elliott, S. T. (C.)
Dundas—Ozlin, R. L. (C.)
Falls Church—Fadelye, J. M. (L.)
Forestville—Biller, A. C. (L.)
Haymarket—Payne, W. C. (L.)
Lynchburg—Davis, T. N., Jr. (C.)
Newport News—Davis, R. A. (C.)
Norfolk—Smith, C. C., Jr. (C.)
West, D. P. (C.)
Port Royal—Shelley, P. H. (C.)
Pounding Mill—Zimmerman, G. T. (C.)
Richmond—Graves, K. D. (C.)
Stern, H. S. (C.)
Warrick, F. K. T. (M.)
Weisiger, W. B. (C.)
Roanoke—Kemp, J. W. (C.)
Stony Creek—Parson, A. D. (L.)
Suffolk—Yates, O. R. (L.)

WASHINGTON

Dayton—Chase, R. J., Jr. (L.)
Ferndale—Hood, C. S. (C.)
Onalaska—Millington, W. A. (L.)
Seattle—Cassels, W. G. (M.)
Lessing, A. (M.)
Spokane—Johnson, A. C. (C.)
Pennock, W. J. (M.)
Robinson, H. H. (C.)
Sultan—Bortner, H. W. (C.)

WEST VIRGINIA

Bluefield—Hern, W. O. (C.)
Charleston—Maira, A. (C.)

Clarksburg—Cherry, S. L. (C.)
Fairmount—Weirick, C. R. (L.)
Hiawatha—Barger, F. W. (C.)
Huntington—Schulz, J. C. (C.)
Malden—DeBell, A. W. (C.)
Marting—Shirkey, I. G. (C.)
Parkersburg—Werner, R. G. (L.)
Salem—Davis, E. (C.)
Summerville—Guilford, E. W. (C.)
Topins Grove—Howell, W. H. (C.)
Wheeling—Hildreth, E. A. (C.)
Masters, W. E. (L.)

WISCONSIN

Alma Center—Griswold, G. W. (L.)
Almena—Cristman, E. S. (C.)
Antigo—Steffen, L. A. (C.)
Chaseburg—Remer, W. H. (L.)
Fennimore—Howell, E. C. (C.)
Fond du Lac—Twohig, J. E. (L.)
Green Bay—Hendrickson, H. (C.)
Hartford—Witte, D. H. (L.)
Milwaukee—Bruins, D. (M.)
Grove, W. E. (C.)
Russell, H. C. (L.)
Mount Horeb—Ishmael, O. E. (L.)
Neenah—Russell, F. H. (C.)
Packwaukee—Gillette, H. E. (C.)
Portage—Taylor, W. A. (L.)
Racine—Hogan, J. H. (C.)
Seymour—Boyden, W. L. (C.)
Sun Prairie—Barry, H. J. (L.)
Wauwatosa—Martin, C. D. (L.)
Olsen, R. E. (L.)

WYOMING

Buffalo—Conyers, C. A. (C.)
Laramie—Lane, A. E. (C.)

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CALIFORNIA

Los Angeles—Werner, E. A. S.

FLORIDA

Tampa—Higgins, A. F.

GEORGIA

Augusta—Pund, E. R.
Savannah—Fitzsimons, L. E.

ILLINOIS

Chicago—Duney, C. S.
Great Lakes—Canavan, F. M.
Gamble, J. W.
Pontiac—Young, J. G.

INDIANA

Vevay—Dodd, D. W.

IOWA

Marshalltown—Lounsberry, R. C.

KANSAS

Elk City—Haydon, O. K.

LOUISIANA

Lakeland—Lorio, C. A.

MASSACHUSETTS

Boston—Macaluso, A.
Tewksbury—Tricky, C. L.
Westboro—O'Brien, T. J.

MINNESOTA

Minneapolis—Kooiker, H. J.
Litchfield, J. T.
Rochester—Sutton, G. D.

MISSOURI

King City—Ferguson, M. J.
Nebo—Hartley, U. E.

NEBRASKA

Omaha—Cochran, F. B.

NEW YORK

New York—Faber, G. W.
Foote, E. M.
Prink, C. A.
Halsted, H.
Meeker, H. D.
Rochester—Waterman, J. L.
Yonkers—Reed, F. O.

OHIO

Birds Run—Swan, G. F.

PENNSYLVANIA

Tarentum—Conwell, F. L.

SOUTH CAROLINA

Darlington—DuBose, R. H.
Enoree—Holcombe, V. E.

TEXAS

El Paso—McKinney, Wm.

VIRGINIA

Charlottesville—Waddell, W. W.
City Point—Bradley, J. C.
Fork Union—Snead, G. H.
Lynchburg—Davis, J. W.

WASHINGTON

Seattle—Coe, H. E.

WEST VIRGINIA

Page—Whitehurst, E. B.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Arkansas

To report to the commanding general, Southern Department, from Camp Pike, Lieut. J. H. M. HARDY, Malvern.

California

To Camp Lee, Va., from Hoboken, Lieut. C. C. DICKINSON, McCloud.

To Camp Lewis, Wash., from Fort Douglas, Capt. W. C. MABRY, Tropico.

To Fort Bayard, N. M., from Whipple Barracks, Capt. J. H. MEYER, San Bernardino.

To Fort Des Moines, Iowa, from Camp Fremont, Lieut.-Col. C. W. HAVERKAMPF.

To Fort Sheridan, Ill., from Camp Dix, Major C. W. HUGHES, Hawthorne; Capt. E. W. BURKE, Redlands.

To Fox Hills, N. Y., from Camp Dix, Capt. C. L. TRANTER, San Francisco.

To report to the commanding general, Central Department, from Camp Dix, Major H. X. CLINE, Burbank. Hawaiian Department, from San Francisco, Lieut.-Col. E. G. NORTHINGTON. Southern Department, from Hoboken, Major W. O. BLANCHAR, Los Angeles.

To San Francisco, Calif., Letterman General Hospital, from Camp Kearney, Capt. E. N. REED, Santa Monica; from San Francisco, Major H. D. OFFUTT; from Surgeon-General's Office, Major P. M. THOMAS, San Francisco.

Colorado

To Denver, Colo., from Fort D. A. Russell, Major O. D. WESCOTT, Denver.

To Fort Riley, base hospital, from Camp Dix, Major L. M. VAN METER, Denver.

District of Columbia

To Camp Gordon, Ga., from Walter Reed General Hospital, Major P. E. McNABB.

To Fort Bayard, N. M., from Walter Reed General Hospital, Major L. A. FOX.

To Fort Sam Houston, Texas, from Army Medical School, Major E. A. FENNEL.

To Washington, D. C., Surgeon-General's Office, from Camp Dix, Lieut.-Col. R. T. MORRIS, Washington.

Florida

To Fort McPherson, Ga., from Camp Dix, Major H. M. BEARDALL, Orlando.

To Plattsburg Barracks, N. Y., from Camp Dix, Capt. H. E. PARNELL, Fort Myers.

Georgia

To Denver, Colo., from Fort Oglethorpe, Lieut.-Col. C. D. COWLES, Jr.

To Fort McPherson, Ga., from Camp Taylor, Capt. T. H. STEWART, Jr., Atlanta; from Walter Reed General Hospital, Major T. C. DAVISON, Atlanta.

To report to the commanding general, Hawaiian Department, from Camp Gordon, Major F. H. POTTERS.

The following order has been revoked: *To Camp Meade, Md.*, from Camp Jackson, Capt. F. W. ROGERS, Dakota.

Illinois

To Army Medical School, D. C., from Chicago, Major C. B. WOOD.

To Columbus Barracks, Ohio, from Denver, Lieut. T. W. HAGERTY, Chicago.

To Fort Riley, base hospital, from Detroit, Capt. B. M. CONLEY, Wilmette.

To Fort Sam Houston, Texas, base hospital, from Camp Travis, Lieut. G. E. BRERETON, Chicago.

To Fort Sheridan, Ill., from Camp Dix, Lieut. H. T. GARRISON, Chicago; from Camp Dodge, Lieut. A. W. CHRISTENSON, Rockford; from Camp Grant, Capt. D. H. KELLER, Anna; from Camp Zachary Taylor, Lieut. G. E. PFEIFFER, Chicago; from Fort Des Moines, Lieut. J. E. BENTLEY, Chicago.

To Fort Slocum, N. Y., from Camp Dodge, Major F. C. TEST, Chicago.

To report to the commanding general, Central Department, from Camp Dix, Capt. D. T. COLE, Odell.

To Walter Reed General Hospital, D. C., from Fort Sheridan, Major G. W. WOODNICK, Chicago.

Indiana

To Camp Shelby, Miss., from Camp Dix, Major B. WEBSTER, Kingsbury.

To Fort Benjamin Harrison, from East View, Major H. M. HOSMER, Gary.

To Fort McHenry, Md., from Camp Jackson, Lieut. C. E. COX, Indianapolis.

To Fort Sam Houston, Texas, base hospital, from Denver, Lieut. P. W. HOPKINS, East Chicago.

To Otsen, N. C., from Fort Oglethorpe, Lieut. F. B. ROBERTS, Indianapolis.

To Walter Reed General Hospital, D. C., from Fort Benjamin Harrison, Lieut.-Col. G. B. LAKE.

Iowa

To Camp Gordon, Ga., from Camp Pike, Major E. E. HOBBY, Iowa City.

To Fort Des Moines, Iowa, from Camp Dodge, Capt. L. M. COFFEY, Keokuk.

To Fort Sheridan, Ill., from Camp Dodge, Major F. L. LOVE, Iowa City.

To Newport News, Va., from Camp Jackson, Capt. C. H. KINNAMAN, Keokuk.

To Otisville, N. Y., from Camp Dix, Capt. J. A. MATSON, Purdy.

Kansas

To Carlisle, Pa., from Walter Reed General Hospital, Capt. J. W. SPEARING, Norcatur.

To report to the commanding general, Southern Department, from Camp Kearney, Capt. W. DOSTER, Coldwater.

Kentucky

To Camp Zachary Taylor, Ky., from Camp Pike, Major W. B. GOSSETT, Louisville.

To Carlisle, Pa., from Camp Zachary Taylor, Capt. O. P. HODGE, Grants Lick.

Louisiana

To Fort McPherson, Ga., from Camp Upton, Capt. R. H. FISHER, Sulphur.

To report to the commanding general, Southeastern Department, from Camp Dix, Major D. H. TREPAGNIER, Burrwood.

Maine

To Walter Reed General Hospital, D. C., for instruction, from Camp Upton, Capt. L. B. HAYDEN, Livermore Falls.

Maryland

To Fort McHenry, Md., from Camp Meade, Capt. H. K. FLECKENSTEIN, Lieut. W. A. DARBY, Baltimore.

To Fort Schuyler, N. Y., from Camp Meade, Col. J. B. HUGGINS.

To Montgomery, Ala., from Mineola, Capt. C. T. C. BUCKNER, Baltimore.

Massachusetts

To Fort McHenry, Md., from Hoboken, Lieut. F. S. CALDICOTT, Milford.

To Fort Slocum, N. Y., from Boston, Col. W. A. POWELL.

To Fox Hills, N. Y., from Camp Zachary Taylor, Lieut. J. J. H. HILTON, Lawrence.

To Plattsburg Barracks, N. Y., from Camp Dix, Lieut. M. H. SPELLMAN, Whitman.

To report to the commanding general, Hawaiian Department, from Camp Devens, Major A. B. JONES.

To San Francisco, Calif., from Camp Dix, Major A. H. PIERCE, Leominster.

To Walter Reed General Hospital, D. C., for instruction, from Fort Snelling, Capt. F. A. BARDWELL, Boston; from Pittsburgh, Capt. A. U. F. CLARK, Westboro.

The following order has been revoked: *To Mineola, N. Y.*, Hazelhurst Field, for instruction, from Newport News, Lieut. P. H. CLARKE, Holyoke.

Michigan

To Fort Riley, base hospital, from Detroit, Capt. C. L. STOREY, Detroit.

To Fort Sheridan, Ill., from Camp Kearney, Major H. S. BARTHOLOMEW, Lansing; from Detroit, Lieut. F. D. GERMAN, Franklin.

To report to the commanding general, Hawaiian Department, from Fort Oglethorpe, Major H. L. ARNOLD, Owosso.

To Riverside, Calif., March Field, from Mineola, Lieut. J. L. DESROSIERS, Detroit.

To San Francisco, Calif., Letterman General Hospital, from Camp Zachary Taylor, Major C. BARTON, Detroit.

Minnesota

To Colonia, N. J., from Pittsburgh, Lieut. G. A. MURRAY, Rochester.

To Fort Des Moines, Iowa, from Fort Snelling, Lieuts. H. W. STONE, Minneapolis; J. C. WALKER, Jr., Rochester.

To report to the commanding general, Southern Department, from Camp Pike, Capt. V. D. GUITTARD, Cloquet.

The following order has been revoked: *To Fort McHenry, Md.*, from Camp Upton, Capt. F. P. MOERSCH, Minneapolis.

Missouri

To Camp Lee, Va., from Army Medical School, Lieut. S. J. WOLFERMANN, St. Louis.

To Fort Sam Houston, Texas, base hospital, from Camp Kearney, Capt. C. L. WOOLSEY, Chillicothe.

To Fort Sheridan, Ill., from Fort Sill, Major T. J. LYNCH, St. Joseph.

To Fox Hills, N. Y., from Camp Dix, Capt. F. L. PRATT, Kansas City.

To Jefferson Barracks, Mo., from Camp Dix, Lieut. J. F. BREDECK, St. Louis.

To Walter Reed General Hospital, D. C., from Camp Grant, Capt. A. S. HEITHAUS, St. Louis.

Montana

To Fort Des Moines, Iowa, from Fort Snelling, Capt. P. L. ASHLEY, Wibaux.

Nebraska

To Camp Pike, Ark., from Camp Dix, Capt. S. B. HALL, Omaha.

New Hampshire

To Walter Reed General Hospital, D. C., for instruction, from Camp Meade, Capt. B. W. CARR, Pittsfield.

New Jersey

To Army Medical School, from Camp Dix, Col. G. B. FOSTER, Jr.

To Camp Bragg, N. C., as camp surgeon, from Hoboken, Col. W. H. TEFFT.

To Camp Grant, Ill., from Camp Dix, Col. A. M. WHALEY.

To Camp Meade, Md., from Hoboken, Col. E. L. RUFFNER.

To Fort McHenry, Md., from Camp Dix, Col. T. H. JOHNSON.

To Fort McKinley, Me., from Hoboken, Lieut.-Col. J. D. HEYSINGER.

To Fort Sam Houston, Texas, base hospital, from Fort Douglas, Capt. A. F. GRAHAM, Paterson.

To Fort Screven, Ga., from Hoboken, Lieut.-Col. W. DENTON.

To Fort Sheridan, Ill., from Camp Dix, Lieut.-Col. H. L. DALE; from Hoboken, Cols. H. C. MADDUX, R. C. McDONALD.

To Fort Strong, Mass., from Camp Dix, Lieut.-Col. O. W. PINKSTON.

To Fort Wadsworth, N. Y., from Hoboken, Col. F. SCHMITTER.

To Fox Hills, N. Y., from Camp Dix, Col. E. G. HUBER.

To Governors Island, N. Y., from Hoboken, Lieut.-Col. F. S. MACY.

To Monterey, Calif., from Hoboken, Col. J. I. MABEE.

To New Haven, Conn., for instruction, and on completion to San Francisco, Calif., Letterman General Hospital, from Camp Dix, Major G. C. B. FRANKLIN.

To Otten, N. C., from Hoboken, Lieut. V. H. CORNELL.

To report to the commanding general, Eastern Department, from Camp Dix, Lieut.-Col. E. L. NAPIER. Southern Department, from Camp Dix, Col. W. E. COOPER; from Hoboken, Lieut.-Col. C. W. McMILLAN. Western Department, from Camp Dix, Lieut.-Col. L. S. HUGHES.

To San Francisco, Calif., Letterman General Hospital, from Hoboken, Col. J. M. KENNEDY.

To Walter Reed General Hospital, D. C., from Hoboken, Col. N. L. McDIARMID.

New York

To Americus, Ga., Souther Field, from Mineola, Lieut. J. F. BOURKE, Jamaica.

To Camp Devens, Mass., from Hoboken, Lieut. J. I. SCHOONMAKER, West Coxsackie.

To Camp Dix, N. J., from Army Medical School, Lieut. E. A. LANE, New York. Base hospital, from Camp Devens, Major H. A. RILEY, New York.

To Camp Gordon, Ga., from Camp Dix, Lieut. R. V. HADLEY, Collins.

To Carlisle, Pa., from Eastview, Major C. A. SQUIRES, Binghamton.

To Fort McPherson, Ga., from Eastview, Capt. C. R. BAKER, Kingston.

To Fort Porter, N. Y., from Fort Monroe, Major M. M. LUCID, Cortland.

To Fox Hills, N. Y., from Detroit, Capt. L. H. TAFT, New York; from East View, Capt. P. B. FITZGERALD, New Rochelle.

To Hoboken, N. J., from Camp Jackson, Capt. C. R. GILL, Brooklyn.

To Otsen, N. C., from Fort Oglethorpe, Lieut. C. R. HENRY, New York.

To report to the commanding general, Hawaiian Department, from Camp Upton, Major R. P. WILLIAMS; from Fox Hills, Col. W. F. TRUBY. Philippine Department, from Fort Slocum, Col. E. M. TALBOT.

To Spartanburg, S. C., from Fort Oglethorpe, Lieut. E. L. WILSON, Bolton Landing.

To Walter Reed General Hospital, D. C., from Camp Upton, Lieut. T. A. D. SOMERS, New York.

To Washington, D. C., from Mineola, Lieut. J. J. LANCER; from Tobyhanna, Pa., Capt. E. L. AYME, New York. Bolling Field, from Minneola, Major J. DIBBLE.

North Carolina

To Camp Shelby, Miss., from Oteen, Major R. A. CAMPBELL, Statesville.

To report to the commanding general, Hawaiian Department, from Camp Bragg, Col. W. M. SMART.

Ohio

To Denver, Colo., from Camp Meade, Lieut. F. R. TROUTE, Jamestown.

To Fort Benjamin Harrison, from Camp Dix, Lieut. J. T. KENNEDY, Cincinnati; from Pittsburgh, Capt. W. N. KEENAN, Coshocton.

To Fort Sheridan, Ill., from Fort Snelling, Lieut. R. K. FINLEY, Xenia.

To report to the commanding general, Central Department, from Camp Dix, Capt. J. FRIDLINE, Ashland.

Oklahoma

To Fort Leavenworth, Kas., from Camp Zachary Taylor, Capt. E. F. DAVIS, Oklahoma City.

To Fort Sill, Okla., Post Field, from Mineola, Capt. D. A. MYERS, Lawton.

Oregon

To Denver, Colo., from Camp Lewis, Major R. C. MATSON, Portland.

To Walter Reed General Hospital, D. C., from East View, Capt. G. L. HYNSON, Portland.

Pennsylvania

To Carlisle, Pa., from Pittsburgh, Lieut. J. H. KRIEDER, Harrisburg.

To Houston, Texas, Ellington Field, from Mineola, Capt. C. H. KETTERER, Butler.

To Otisville, N. Y., from Pittsburgh, Lieuts. T. F. MOORE, E. S. WEIMER, Pittsburgh.

To Plattsburg Barracks, N. Y., from Camp Dix, Capt. R. ZIMMERMAN, Wilmerding.

To San Francisco, Calif., Letterman General Hospital, from Fort Snelling, Capt. E. H. ERNEY, Philadelphia.

To Washington, D. C., Surgeon-General's Office, from Camp Dix, Lieut. J. F. HERBERT, Jr., Philadelphia.

The following orders have been revoked: *To Colonia, N. J.*, from Walter Reed General Hospital, Major C. C. YOUNG, Philadelphia.

To Fort McHenry, Md., from Cape May, Lieut. H. W. SCARLETT, Bryn Mawr.

South Carolina

To Fort McHenry, Md., from Camp Dix, Capt. W. R. JOHNSON, Windsor.

To report to the commanding general, Philippine Department, from Camp Jackson, Major O. H. STANLEY.

To Spartanburg, S. C., from Biltmore, Major M. P. MOORER, Georgetown.

Tennessee

To Colonia, N. J., from Camp Dix, Capt. B. C. McMAHON, Memphis.

To Fort McPherson, Ga., from Camp Dodge, Capt. O. B. CHANDLER, Union City; from Camp Lee, Lieut. C. W. ROBINSON, Memphis.

To Fort Sheridan, Ill., from Camp Custer, Lieut. C. R. CRUTCHFIELD, Nashville.

To Spartanburg, S. C., from Camp Lee, Lieut. E. C. SEALE, Nashville.

Texas

To Camp Bragg, N. C., Pope Field, From Mineola, Lieut. W. A. BLACK, Marlin.

To Camp Travis, Texas, from Camp Dix, Capt. J. A. SIMPSON, Brownsville.

To Fort Sam Houston, Texas, base hospital, from Camp Dix, Capt. C. C. ODOM, Childress.

To Monterey, Calif., from Fort Oglethorpe, Lieut. S. E. MURCHISON, Marshall.

Utah

To Fort Sam Houston, Texas, base hospital, from Fort Douglas, Capt. C. M. BENEDICT, Salt Lake City.

To Fort Sill, Okla., from Fort Douglas, Major W. CHRISTOPHERSON, Salt Lake City.

Vermont

To Carlisle, Pa., from Pittsburgh, Lieut. A. A. CROSS, Williamstown.

Virginia

To Fort Sheridan, Ill., from Newport News, Major W. DENISON.

To San Antonio, Texas, Kelly Field, from Mineola, Capt. S. E. BROWN, Norfolk.

Washington

To Camp Lewis, Wash., base hospital, from Fort Snelling, Lieut. R. L. GHERING, Spokane.

To report to the commanding general, Western Department, from Camp Lewis, Lieut.-Col. H. H. SHARPE.

Wisconsin

To Fort Sam Houston, Texas, from Camp Jackson, Major M. W. HALL, Mondovi.

To Mineola, N. Y., from Camp Bragg, Capt. J. J. FRANCE, Milwaukee; from Montgomery, Ala., Capt. H. S. STEENBERG, Milwaukee.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Asst. Surg.-Gen. C. C. PIERCE, proceed to New York for conference with the executive committee of the State Health Officers' Association.

Sen. Surg. J. H. WHITE, proceed to Greenville, S. C., on temporary duty.

Surg. EDWARD FRANCIS, proceed to Salt Lake City, Utah, for conference with Secretary of the State Board of Health, and for study of so-called deer-fly fever.

Surg. E. A. SWEET, proceed to Knoxville, Tenn., to examine the Whittle Springs property with regard to its suitability for use as a hospital by the Public Health Service.

P. A. Surg. LISTON PAINE, detailed as supervisor of the district comprising the Virgin Islands, for the examination and treatment of War Risk beneficiaries.

P. A. Surg. J. G. TOWNSEND, bureau orders of June 24, 1919, amended so as to fix the headquarters of the Supervisor of District No. 4, War Risk Insurance beneficiaries, at Washington, D. C., instead of Baltimore, Md.

P. A. Surg. W. C. WITTE, proceed to Chicago, Ill., to attend Red Cross conference relative to tuberculosis cases.

P. A. Surg. CARL MICHEL, detailed as supervisor of the district comprising Porto Rico, for the examination and treatment of War Risk beneficiaries.

Asst. Surg. J. D. APPLEWHITE, relieved at Petersburg, Va., in extra-cantonment work; report for duty in rural sanitation in the State of Virginia with headquarters at Petersburg.

Prof. C. W. STILES, proceed to Monteagle, Tenn., from time to time to deliver addresses before the Monteagle Chautauqua.

Surg. L. E. COBLE, Reserve, ordered to active duty in the reserve corps of the Public Health Service, effective July 1, 1919.

P. A. Surg. J. LEE ADAMS, Reserve, ordered to active duty in the Reserve Corps of the Public Health Service, effective July 1, 1919.

P. A. Surg. W. H. AXTELL, Reserve, bureau letter dated June 3, 1919, amended so as to assign him to active duty June 1, 1919.

P. A. Surg. R. W. BROWN, proceed to East Norfolk, Mass., for temporary duty.

P. A. Surg. CHARLES S. COWIE, Reserve, ordered to active duty in the reserve corps of the Public Health Service, effective July 1, 1919.

P. A. Surg. S. W. CRITTENDON, Reserve, relieved at East Norfolk, Mass. Proceed to the Marine Hospital, Boston, Mass., for duty in the examination and treatment of cases suffering from neuroses or disturbed mental conditions.

P. A. Surg. A. P. GOFF, Reserve, ordered to active duty in the Reserve Corps of the Public Health Service, effective July 15, 1919; proceed to Washington, D. C., for duty in the Division of Marine Hospitals and Relief.

P. A. Surg. GEORGE A. ROWLAND, Reserve, ordered to active duty in the Reserve Corps of the Public Health Service, effective July 1, 1919.

Asst. Surg. C. E. JAMES, Reserve, ordered to active duty in the Reserve Corps of the Public Health Service, effective July 15, 1919. Proceed to Boston, Mass., for duty at the Marine Hospital.

Asst. Surg. HENRY E. ST. ANTOINE, Reserve, ordered to active duty in the Reserve Corps of the Public Health Service, proceed to Baltimore, Md., for duty in the Marine Hospital.

Asst. Surg. DANA L. WEED, Reserve, ordered to active duty in the Reserve Corps of the Public Health Service, effective July 1, 1919.

Asst. Surg. JOSEPH E. WHEELER, Reserve, ordered to active duty in the Reserve Corps of the Public Health Service, proceed to the marine hospital, St. Louis, Mo., for duty.

Act. Asst. Surg. ROBERT P. HARRISON, relieved at Little Rock, Ark., proceed to Greenville, S. C., for duty in the U. S. Public Health Service.

Act. Asst. Surg. J. BALDWIN McCOMB, relieved at Macon Ga.; proceed to New Orleans, La., and report to supervisor of District No. 6.

Act. Asst. Surg. J. C. MONTGOMERY, relieved at Manhattan, Kan., proceed to Joplin, Mo., for duty in connection with rural sanitation.

Intern JOSEPH J. BATEMAN, proceed to Washington, D. C., for duty in the Mount Alto Hospital.

Scien. Asst. C. S. BROWN, proceed to points in the States of Pennsylvania, New Jersey and Delaware, for conference relative to venereal disease control among seamen.

Scien. Asst. P. L. HELMICK, relieved at Philadelphia, Pa., proceed to Washington for conference.

Scien. Asst. H. S. LUCAS, relieved from rural sanitation duty in the State of Virginia, proceed to Joplin, Mo., for duty in rural sanitation.

Asst. Educational Director DAVID ROBINSON, proceed to Toledo, Ohio, for conference relative to combating venereal diseases in that city.

Regional Consultant RUSSELL A. JEWETT, proceed to New York and Boston for conference with insurance officials relative to cooperation in venereal control measures.

Regional Consultant EDITH M. RABE, proceed to Auburn, Ala., to lecture before a special school of instruction for women.

Lecturer ROSCOE C. BOWN, proceed to Harpers Ferry, W. Va., Hampton, Va., and Buck Roe Beach, Va., to deliver addresses on the venereal disease programme.

Resignation of Assistant Surgeon R. L. DeSAUSSURE accepted by direction of the President to be effective Oct. 20, 1919.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ILLINOIS

New Tuberculosis Clinic.—The first tuberculosis clinic was held by the Lee County Tuberculosis Association at Dixon, July 9, under the instruction of Dr. Russell E. Adkins, Springfield. In the afternoon Dr. Adkins conducted a similar clinic at Sterling.

Graduate Course Lecture.—The seventh lecture of the graduate summer quarter in medical sciences at the University of Illinois, Chicago, was delivered, July 23, by Prof. Leslie B. Arey of Northwestern University on "Giant Cells and Their Rôle in Bone Resorption."

Personal.—Dr. Samuel J. Walker, Chicago, has been awarded a medal of the third class by the Greek government. ——Dr. Anna Dwyer, Chicago, fell at Ravinia Park, July 11, fracturing her arm.——Dr. John S. Sweeney, Chicago, has returned after service with the American Expeditionary Forces in France.

Public Health Campaign.—The Chicago Chapter of the American Red Cross, July 15, entered definitely on the preparatory measures for handling epidemic or other civilian disasters. It has appropriated $15,000 for the campaign of preparedness to include courses of instruction for home nursing which will be under the charge of Mrs. John McMahon.——The new municipal nursing school for Chicago will open, August 4. The school is to be located in the old Loyola School of Medicine building on Fulton Street. The plan includes a training course of eight weeks for the women of Chicago who desire to become proficient in home nursing. Applications for admission to the school should be made to the department of health, City Hall.

INDIANA

Board Reversed.—The finding of the Indiana Board of Medical Registration and Examination in the revocation of the license of George F. Smith, Bicknell, has been reversed by the Knox Circuit Court.

Reinstatement Denied.—At a recent meeting, the Indiana State Board of Medical Registration and Examination declined to restore the license of Dr. Charles L. Landfair, Bluffton, Ind., which had been revoked in 1906, for the reason that it was not satisfactorily shown by the evidence presented that he was entitled to such restoration of his right to practice.

Funds Needed for Tuberculosis Camp.—At the meeting of the Evansville Anti-Tuberculosis Society, held at Evansville, July 8, a committee was appointed to wait on the hospital compaign committee and ask for an appropriation of $40,000 for the Boehne Camp. This money is needed for the purpose of the outing farm, and for the installation of a central heating plant.

New Reciprocal Relations.—The Indiana State Board of Medical Registration and Examination has recently established reciprocal relations with Alabama, Georgia and Washington. Relations had previously been established with Arkansas, Colorado, District of Columbia, Illinois, Kansas, Kentucky, Louisiana, Maine, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Tennessee, Texas, Utah, Vermont, Virginia, West Virginia, Wisconsin and Wyoming. This makes thirty-four states with which Indiana now reciprocates in the matter of medical licensure.

IOWA

Full Time Physician for City.—At a joint meeting of the city council and school board of Fort Dodge, held June 5, it was decided to employ a physician who shall devote his entire time to the health work in the city including that in the city schools.

Valley Physicians Hold Meeting.—At the forty-eighth annual meeting of the Des Moines Valley Medical Association, held in Ottumwa, June 25 and 26, Dr. Laris P. Torrence,

Blakesburg, was elected president, and Drs. William S. Lessinger, Mt. Pleasant, and Lora D. James, Fairfield, vice presidents.

Personal.—Dr. Daniel C. Stellsmith, health officer of the University of Iowa and Iowa City, has been appointed city health officer of Columbus, Ga.——Dr. James S. Cooper, Burlington, has been appointed physician of Des Moines County, succeeding Dr. Benjamin F. Campbell, whose time has expired.——Dr. E. A. Kepford has resigned as state director of the Red Cross and will resume his work as state lecturer on tuberculosis.——Dr. James Dunn, school physician of Davenport, has resigned in order to permit the former school physician, Dr. Peter H. Schroeder, who has been in military service, to resume his former duties.——Dr. George B. Jenkins, professor of anatomy in the State University of Iowa, Iowa City, has resigned and is to be connected with the Carnegie Institute.

Hospital Items.—Dr. Carlisle R. Jones, Atlantic, took possession of the New Atlantic Hotel and has begun to remodel it for use as a hospital.——The Clipper Building at Clarion has been sold to Dr. Erle D. Tompkins, who will remodel and adapt the building for use as a hospital.—Vern W. Skiff, Chicago, a former citizen of Newton, has given a hospital to that city.——The preliminary plans of the new addition to the Jane Lamb Hospital, Clinton, have been approved. The plans call for a five story building to be located in front of the present building. The structure will be of brick and in harmony with the other buildings.——The controlling interests of the Marengo Mineral Springs Hospital have been purchased from Dr. Erie N. Brown and Ira N. Crow, by Dr. William P. Hutchins.——Permit for the erection of the Sunnycrest Tuberculosis Hospital, Dubuque, to cost $150,000, has been granted.——A campaign for funds to build a $200,000 hospital for women and children in Des Moines has been opened by the Iowa Lutherans.

MARYLAND

Hospital for Negroes Assured.—With the realization of $51,000 collected by the colored people of Baltimore, the purchase of the Union Protestant Infirmary building for a colored hospital is assured. However, the headquarters for the fund will remain open until the $75,000 desired is raised. Of this amount, $25,000 will be used to buy equipment, including an up-to-date roentgen-ray machine.——The trustees of the Union Protestant Infirmary will now push their plans for a campaign to raise $750,000 for the erection of a new hospital group on the site acquired at Homewood. Plans for the hospital will be brought to completion at once by the architect.

Personal.—Dr. W. G. Vandermin, the urologic specialist of the Island of Java, recently visited the Johns Hopkins Hospital. He will spend eight days in Baltimore engaging in further research at Johns Hopkins, when he will leave for Holland on his way back to Java. In May, 1916, he entered the medical corps of the Dutch East Indian Army, and has since then visited Holland, England, France, Spain, Japan, China and America.——Alan M. Chesney, Major, M. C., U. S. Army, Baltimore, who arrived recently in Newport News after more than two years spent in base hospitals with British and American armies in France, has been ordered to Camp Dix pending his separation from the service.——Dr. Daniel St. T. Jenifer, who served with the U. S. Medical Corps overseas, is visiting his home at Towson.—Dr. Ralph C. P. Truitt, Baltimore, has been appointed medical director of the Illinois Society for Mental Hygiene.

Reconstruction Work.—The big exhibit of reconstruction work for wounded soldiers done at U. S. Army General Hospital No. 2, Fort McHenry, in charge of Harry S. Purnell, Lieut.-Col., M. C., U. S. Army (retired), opened, July 21, at the Medical and Chirurgical Faculty Building, Baltimore, and will continue for a week or ten days. It is open to the public free of charge and affords an opportunity to see the remarkable work done by surgeons at this post for the soldiers marred and shattered by war. Besides a complete exposition of reconstruction methods, the collection includes drawings of unusual operations, sketched by artists who followed each step of the processes; reproductions of deformities before and after correction, and models, masks, casts and paintings of many descriptions. It has proved so interesting to the medical authorities at Washington that it will be moved to that city from the Medical-Chirurgical Building and made a part of the collection in the Army Medical Museum.

NEW YORK

New Regulation for Registration of Births.—In order to meet the requirements of the law passed by the last legislature, the state health department in about to issue printed forms complying with the new regulations. For all births occurring since April 14, 1919, the forms will give the name of the child, the date and place of its birth, the names of the parents, and the signature of the registrar who signed the birth certificate. The state health department urges the importance of proper birth registration on both physicians and the laity.

Personal.—Homer Folks, director of the Department of Civil Affairs of the American Red Cross, and a member of the Public Health Council of New York, has been made a Chevalier of the Legion of Honor by the French government and a Commander of the Order of the White Eagle by the Serbian government.——Dr. Henry L. K. Shaw, Albany, director of the Division of Child Hygiene in the state department of health since 1914, has resigned and will devote all his time to private practice.——Major Albert H. Garvin, Ray Brook, formerly superintendent of the New York State Hospital for Tuberculosis, who went to France in September, 1917, where he served as chief of the Bureau of Tuberculosis, Medical and Surgical Department, with the American Red Cross forces, has been decorated with the Medaille d'Honneur de Vermeil of the French government in recognition of his services to that country.

New York City

To Organize New Hospital.—Application has been made for the incorporation of the St. Bartholomew's Hospital and Clinic for the Alimentary Canal. The clinic is to be conducted at 215 East Forty-Second Street and is an extension of the work begun by the late Bishop Greer when he was rector of St. Bartholomew's Church.

Personal.—Dr. William B. Brinsmade of Brooklyn has been cited by General Pershing for exceptionally meritorious and conspicuous service in the American Expeditionary Forces. Dr. Brinsmade organized Naval Base Hospital No. 1 which took care of 3,668 battle casualties and 504 cases of pneumonia.——Dr. John Leonard Kantor has been released from army service.

Physicians Face Prosecution.—Summonses for more than 8,000 physicians, dentists, druggists and veterinarians authorized to dispense narcotic drugs, who failed to register with the state department of narcotic drug control on or before July 1, as required by law, are being issued. Violation of this law is a misdemeanor punishable by revocation of license and other penalties.

Sold Fake Diplomas.—According to a news report, Nicholas D. Clements, New York, pleaded guilty, July 7, to selling a bogus medical diploma to Abraham Lazinsky of Brooklyn for $1,500. Clements asked leniency on his promise to reveal the names of seventy-five men now practicing as physicians and attorneys on "credentials" sold by him. Clements is serving a term at Dannemora prison.

The Jacobi Will.—The will of the late Dr. Abraham Jacobi disposes of an estate of approximately $300,000. His daughter, Mrs. Margaret McAneny, is the residuary legatee. Bequests of $5,000 are made to the New York Academy of Medicine, and to a niece and a nephew. The Academy of Medicine is also to take such of the decedant's medical books, journals and surgical instruments as may be selected. Dr. Abraham L. Goodman is to have such books and surgical instruments as he may select. Other friends are to receive medical books and surgical instruments. The United States Civil Service Reform Corporation is to receive $1,000. A few other minor bequests are provided.

NORTH CAROLINA

Personal.—Dr. Claude P. Fryer, Greenville, has resigned as county health officer of Pitt County.——Coite L. Sherrill, Major, M. C., U. S. Army, Satesville, has been promoted to the rank of lieutenant-colonel, Medical Corps.

Medical Building for Charlotte.—At a meeting of physicians, lawyers, real estate men and investors in Charlotte, June 26, the feasibility of a medical building was discussed, and a committee was appointed to perfect plans for organizing a corporation to put up the building, to select a suitable site and to make general plans for carrying out the purpose of the meeting.

State Board Items.—Drs. Richard H. Lewis, Raleigh, and J. E. Tucker (D.D.S), have been appointed members of the state board of health for a term of six years.——At the annual meeting of the North Carolina State Board of Medical Examiners, held at Raleigh, June 24 to 27, Dr. John Quincy Myers, Charlotte, was elected president, and Dr. Hubert A. Royster, Raleigh, was continued as secretary-treasurer of the board.

Hospital Notes.—The Grand Lodge of Free Masons of North Carolina has authorized the erection on the grounds of the Masonic Orphanage at Oxford, of the William J. Hicks Memorial Hospital to cost about $75,000. It will be a structure of reenforced concrete, three stories in height and with accommodation for fifty patients.——The Montgomery Home in Concord is being remodeled so that it may be occupied by the Concord Hospital. After the changes are made there will be provision for twenty-five rooms and an open ward to contain ten patients.——The Richard Baker Hospital has been reopened at Hickory.——The Infants' and Children's Sanatorium at Saluda opened for the year, May 25. This institution is devoted exclusively to the treatment of babies and children.——President R. B. Babington of the North Carolina Orthopedic Hospital has received instructions from the building commission to go ahead with his plans for the erection of a hospital for the treatment of crippled children. The institution has at present a site of 28 acres, and $70,000 for the building fund. The hospital is to be located at Gastonia.

OHIO

Memorial to Physician.—A memorial tablet in memory of Dr. Julius H. Jacobson, Toledo, was dedicated, July 10, in the auditorium of the nurses' home of St. Vincent's Hospital.

Anesthetists' Organization.—The Toledo Association of Anesthetists was organized, July 1, and the following officers were elected: president, Dr. Elmer I. McKesson; vice president, Walter Hartung; secretary and treasurer, Dr. Paul P. Gintzel.

Northern Ohio Physicians' Outing.—At the outing arranged for the physicians of northern Ohio at Cedar Point, July 17, by the Ohio State Medical Association, the principal address was delivered by Dr. Harold N. Cole, Cleveland, director of the Bureau of Venereal Diseases for the state of Ohio, on "Venereal Diseases, Their Diagnosis and Control."

Honor Retiring Executive Secretary.—The council of the Ohio State Medical Association gave a dinner, July 6, at Columbus in honor of Mr. George V. Sheridan, executive secretary of the association, who has become publisher of the Springfield (Ohio) *Sun*. On behalf of the association, Dr. John H. J. Upham, Columbus, presented a completely equipped automobile hamper to Mr. Sheridan.

Personal.—Dr. Edison B. Starr, Springfield, has been appointed director of industrial hygiene and medicine by the state board of health, with headquarters at Columbus.——Dr. Klor L. Parent has been appointed head of the Federal Clinic, Lima, succeeding Dr. Aldo V. Sibert, who has resigned.——Dr. J. Carroll McGinnis, Martins Ferry, is reported to be seriously ill.——Dr. James H. Bennett, Youngstown, who was appointed president of the board of education, had a cerebral hemorrhage, June 29.——Dr. Ora O. Fordyce, Athens, has succeeded Dr. George R. Love, Toledo, resigned, as superintendent of the Toledo State Hospital.

PENNSYLVANIA

Hospital Dedicated.—The Sacred Heart Hospital, Allentown, which has been erected at a cost of nearly $200,000, will be dedicated, August 31, in connection with the golden jubilee celebration of the Sacred Heart congregation.

Second Summer School Held.—The second summer camp of the state department of health opened at Mont Alto, July 6, for an instructional course of two weeks under the charge of Dr. Edward Martin, Philadelphia, state commissioner of health, and Dr. John D. McLean, assistant commissioner.

Personal.—Dr. Walter A. Dearth, Pittsburgh, has been elected a member of the Allegheny County prison board.——Dr. James F. Edwards, Pittsburgh, for many years director of the department of health at Pittsburgh, has been appointed health commissioner of Omaha.——Dr. Joseph D. Findley, Altoona, has been elected chief of the staff of the Altoona Hospital, to fill the vacancy caused by the resignation of Dr. Orr H. Shaffer, who, on account of ill health, will spend a year in California.

Philadelphia

Personal.—Cheney M. Stimson, Major, U. S. Army, who served with Base Hospital No. 82 at Toul, France, has returned from overseas.——Dr. Jacob Solis-Cohen at the annual meeting of the Philadelphia Laryngological Society, June 3, was elected honorary president for the term of his life.

Government Returns Hospital.—An agreement has been reached between the War Department and the department of health and charities relative to the lease of a section of the buildings of the Philadelphia General Hospital, which were used by the government during the latter part of the war with Germany as a reconstruction hospital for wounded soldiers and sailors. After the lease of the buildings, which was effected by Director Krusen of the department of health and charities and Secretary of War Baker, the government fitted up the structure with considerable hospital equipment, all of which now becomes the property of the municipality. The buildings were leased at an annual rental of $1.

Preventive Medicine Course at Woman's Medical College.—Dean Tracy, of the Woman's Medical College, has outlined courses calculated to meet the specific needs of medical women in the great field of public health education. These courses have been approved by the interdepartmental social hygiene board, from which a grant of money has been received by the college which enables it to undertake the development of the work this year, pending the fall campaign which shall enable the college to establish a department of preventive medicine. Courses adapted to the needs of the medical women, who are preparing for social work in which a medical background is necessary, are included in the curriculum of the new department. All students entering must undergo physical examination.

RHODE ISLAND

Personal.—Dr. Fenwick Gordon Taggart, East Greenwich, a veteran of the Spanish-American War and who has been overseas for more than a year, has been commissioned major, M. C., U. S. Army.——Dr. John H. Doyle, Providence, now on duty with the Army of Occupation in Germany, has been promoted to the rank of major, M. C., U. S. Army.

Society Meets at State Infirmary.—At the annual meeting of the Kent County Medical Society, held at the State Infirmary, Howard, June 19, a child welfare clinic, a clinic on mental diseases, a surgical clinic and a medical clinic were held, and at the conclusion, lunch was served and the society was entertained by Dr. Henry A. Jones, superintendent of the institution.

Medicolegal Society Election.—The annual meeting of the Rhode Island Medico-Legal Society was held, June 26, at Slocumb's-on-Pawtucket, under the presidency of Dr. Byron U. Richards, Pawtucket, and the following officers were elected: president, Dr. Henry A. Jones, Howard; vice president, Henry D. J. C. Dubois, and secretary-treasurer, Dr. Harry S. Flyn, Providence.

Tuberculosis Prevention.—The Rhode Island Anti-Tuberculosis Association in its eleventh annual report states that in the state there are at present twenty-four local tuberculosis associations, seven sanatoriums and hospitals and preventoriums, seven open air schools, and ten dispensaries. A tuberculosis bureau has also been established by Dr. Charles V. Chapin in the health department.

SOUTH CAROLINA

United States Public Health Service Work at Columbia Ends.—The United States Public Health Service which has maintained an office in Columbia since September, 1917, turned over its work to the state and city health organizations, June 30. During this period the public health service has disbursed more than $75,000 in the protection of the health of military forces and civic health population of Columbia.

Personal.—Dr. Richard L. DeSaussure, Charleston, has been elected commissioner of health of Floyd County, Ga., succeeding Dr. Mather M. McCord.——Dr. James A. Hayne, Columbia, state health officer, who has been very ill in a hospital in Washington, is reported to be improving at his home in Greenville.——Dr. Edward C. L. Adams, Columbia, has been appointed game warden.——Dr. C. Frederick Williams, Columbia, who has been seriously ill, is reported to be convalescent.——Dr. Chauncey M. Rakestraw, Rock Hill, has been made surgeon of the Pryor Hospital, Chester.

Graduation Exercises.—At the annual commencement exercises of the Medical College of the State of South Carolina, Charleston, held June 5, fourteen degrees in medicine and three in pharmacy were conferred. The annual commencement address was delivered by President W. S. Currell of the University of South Carolina. It is announced that Dr. Lane Mullally, Charleston, professor of obstetrics and vice dean of the faculty for thirty years, has resigned. Dr. Francis L. Parker, Charleston, has been elected vice dean of the institution; Dr. G. Fraser Wilson, professor of obstetrics; Drs. Julius C. Sosnowski, Edward H. Sparkman, Jr., and Joseph S. Rhame, assistant professors of surgery; Dr. J. M. Jordan, professor of botany and pharmacognosy; Dr. Henry W. DeSaussure, lecturer on gynecology; Dr. William H. Frampton, assistant in obstetrics and medicine, and Dr. Olin B. Chamberlain, assistant in medicine.

Hospital Notes.—At the annual meeting of the stockholders of the Gaffney City Hospital, June 27, J. A. Carroll was reelected president, and Drs. James N. Nesbitt, Stuart B. Sherard and Robert T. Ferguson, all of Gaffney, directors. ——The work on the Spartenburg General Hospital will probably be commenced this month. The new institution will be a merger of the Good Samaritan Hospital and the Spartanburg Hospital and will be known as the Spartanburg General Hospital. The structure will be of reinforced concrete and fireproof. The site contains 7½ acres and was purchased at a cost of $20,000.——The Abbeville County Memorial Hospital has been granted a commission with a capital of $10,000. The petitioners state that it is their purpose to establish in Abbeville a hospital in memory of soldiers from Abbeville County who died in the recent war.—— The pathologic laboratory of the Columbia Hospital, built and equipped with funds given by Mrs. T. G. Croft, in memory of her husband, the late Dr. T. G. Croft, Aiken, was dedicated recently.

TENNESSEE

State Board Moves.—Quarters for the state board of health have been secured in the capitol annex on Seventh Avenue, Nashville.

Hospital Cornerstone Laid.—The cornerstone of the Tri-State Methodist Episcopal Hospital, Memphis, was laid, June 12. It is estimated that the building will cost $1,000,000.

New Medical Building.—The board of trustees of the University of Tennessee is planning to erect a building for the medical department of the university at Memphis, to cost $100,000.

Personal.—Dr. William O. Sullivan, Newbern, was painfully injured by the overturning of his car between Newbern and Yorkville, July 2.——Dr. I. C. Ramsey, a colored physician of Gallatin, was assaulted while making a professional call, June 3, and is under treatment in a hospital in Nashville.

New Officers.—The West Tennessee Medical and Surgical Association held its annual meeting in Dyersburg, May 30, and the following officers were elected: president, Dr. John D. Brewer, Newbern; vice president, Dr. Harley W. Qualls, Union City; secretary, Dr. Isaac A. McSwain, Paris (reelected).

Physician Loses Suit.—A suit directed by Dr. Ben Friedman of Memphis, against the Tennessee State Board of Medical Examiners, based on the allegation that his license was maliciously revoked, was recently dismissed by the court. Reports indicate that the board revoked his license about a year ago on charges that Friedman had violated the Harrison Narcotic Law.

CANADA

New Brunswick Medical Society.—At the final session of the annual meeting of the New Brunswick Medical Society, held in St. John, July 15 and 16, a special committee brought in a report, which the society subsequently adopted, affirming that alcohol is a medicine and a necessary drug, and should be under no more restrictions than any other drug. It was also declared that special prescription blanks in connection with alcoholic prescriptions are inconvenient and unnecessary.

Personal.—Lieut.-Col. John Amyot, Toronto, professor of hygiene and preventive medicine in the University of Toronto, who has been overseas for three or four years as sanitary officer to one of the Canadian divisions, has been appointed deputy minister of the newly created federal department of public health at Ottawa.——Dr. Wilfrid T. Grenfell, C. M. G., the Labrador medical missionary, has been in Ottawa in the interest of several hospitals he is establishing in that section of Canada.——Major David A. Clark, Toronto, who has had more than four years' service overseas, has been appointed to the staff of the Military Neurological Hospital at Vancouver.——Major Herbert G. Murray, Owen Sound, Ont., who enlisted with the Queen's University Hospital, Kingston, has returned to Owen Sound and reentered private practice.

GENERAL

Coming Meeting.—The thirty-second annual meeting of the American Association of Obstetricians and Gynecologists will be held in Cincinnati, September 15 to 17, under the presidency of Dr. John F. Erdman, New York; Dr. Magnus A. Tate is chairman of the local committee of arrangements.

District Society Election.—At the annual meeting of the Iowa and Illinois Central District Medical Association, held at Davenport, July 10, the following officers were elected: president, Dr. William D. Chapman, Silvis; vice president, Dr. Gordon F. Harkness, Davenport; secretary, Dr. Arthur E. Williams, Rock Island (reelected), and treasurer, Dr. Thomas D. Starbuck, Davenport.

Secretary of Council on Pharmacy and Chemistry Honored.—In connection with the ninety-eighth annual commencement exercises of the Philadelphia College of Pharmacy, the degree of Master of Pharmacy was conferred on Prof. William A. Puckner, Chicago, secretary of the Council on Pharmacy and Chemistry of the American Medical Association. The degree was conferred by the Dean, Dr. Charles H. LaWall.

Chattahoochee Valley Physicians Elect Officers.—At the nineteenth annual meeting of the Chattahoochee Valley Medical Association, held in Columbus, Ga., July 9 to 11, Warm Springs was selected as the next place of meeting and the following officers were elected: president, Dr. Hugh McCulloch, West Point, Ga., vice president, Dr. Walter A. Weed, Birmingham, Ala., and secretary-treasurer, Dr. William J. Love, Opelika, Ala. (reelected).

New Officers.—The Association of American Physicians, at its annual meeting in Atlantic City, June 16 and 17, elected the following officers: president, Dr. Hermann M. Biggs, New York; vice president, Dr. William S. Thayer, Baltimore; secretary, Dr. Thomas McCrae, Philadelphia; recorder, Dr. Thomas R. Boggs, Baltimore; treasurer, Dr. Joseph A. Capps, Chicago, and councilor, Dr. Lewis A. Conner, New York.——The annual meeting of the American Society for Tropical Medicine was held in Atlantic City, N. J., June 16 and 17, and the following officers were elected: president, Henry J. Nichols, Colonel, M. C., U. S. Army, Washington, D. C.; vice presidents, Drs. John M. Swan, Rochester, N. Y., and Carl F. Meyer, San Francisco; secretary and treasurer, Dr. Sidney K. Simon, New Orleans, and assistant secretary, Dr. Allen J. Smith, Philadelphia. New Orleans was selected as the next place of meeting.

Legislation for Influenza Control.—The first step in the way of obtaining legislation to combat a recurrence of the influenza epidemic has been taken in Congress by the introduction of a measure by Congressman Eugene Black of Texas. The bill provides an appropriation of $500,000 for the investigation of the causes, modes of transmission, prevention and cure of influenza, pneumonia and allied diseases, and the fund is also made available for combating these diseases. This sum is made available until July 1, 1922. The Public Health Service is charged with the expenditure and administration of this work. The Surgeon-General of the Public Health Service is authorized to employ such medical assistance and nurses as may be necessary, fixing their compensation at not greater than the amounts paid other similar employees of the Public Health Service. The Surgeon-General is directed to file an itemized list of expenditures with Congress, December 1 of each year. A preamble to the measure declares that the influenza epidemic caused 500,000 deaths in the United States, that influenza and pneumonia cause one tenth of all the deaths in the United States, that medical science is not yet in possession of complete data regarding these diseases, and that they are of grave social concern to the United States. The bill is No. 7293, and was referred to the House Committee on Appropriations, of which Congressman James W. Good of Iowa is chairman, for action.

A Bill for a National Department of Health.—Hon. Joseph I. France, U. S. Senator from Maryland and chairman of the Senate Committee on Public Health and National Quarantine, introduced on July 17, Senate Bill 2507 creating a department of public health. The bill follows the general plan of the Owen Bill, with some important modifications.

It provides for a department of public health under the direction of a secretary, who shall be a member of the cabinet, and for three assistant secretaries, the first assistant to be a man trained in medical science, public health and sanitation; the second to be an expert in vital statistics; and the third to be a woman trained in medicine or nursing and public health. The U. S. Public Health Service and the Bureau of Chemistry are to be transferred to the new department, which is also to have bureaus on vital statistics, sanitation, hospitals, child and school hygiene, quarantine, food and drugs, nursing, tuberculosis and personnel. The secretary of public health is directed to communicate with the governor of each state requesting him to recommend to the legislature suitable legislation with adequate appropriations to secure cooperation between the federal department of public health and the state board of health. Every state taking such action is to be entitled to its proportionate share of such funds as may be appropriated by Congress for carrying out the provisions of the act. The secretary of public health is also directed to divide the United States into health states, districts, subdivisions and precincts, each conforming to the geographical boundaries of the various political divisions. Each state is to create a state board of health with a state health officer and a health officer for each district, subdivision and precinct, the secretary of public health to appoint these state officers as federal health officers "so that in each cooperating state every health officer of said state or of each district, county or precinct therein is by virtue of his selection by the local authorities become also a federalized officer and as such an integral part of the Department of Public Health." The Department of Public Health is directed to cooperate with the Departments of Commerce, Labor and the Interior in the collection of vital statistics and to establish a uniform system of cards, records and reports regarding diseases, disabilities, industrial accidents, births, deaths, physical condition of schoolchildren, the number and condition of existing hospitals, etc. The bill provides for the appropriation of $15,000,000 for 1920 to be prorated among the states in proportion to their population as soon as the states comply with the provisions of the law and the regulations of the secretary of public health, provided that each cooperating state must contribute to the public health work a sum equal to that contributed by the federal government and that it must make full and complete reports of births, deaths and morbidity. It also appropriates $48,000,000 for the construction of sanatoriums and hospitals, this sum to be distributed among the states in proportion to their population, each state receiving its allotment to provide an equal amount, also location, plans and means of future support for the proposed hospital.

FOREIGN

Conference of Manufacturing Chemists in Italy.—The First National Congress of the Manufacturing Chemists of Italy is to convene at Milan in October with an exhibition annex.

Smallpox at Barcelona.—There has been a rather serious outbreak of smallpox in Barcelona. The papers there attribute it to the migration of patients from other parts of Spain.

Special Belgian Ear and Throat Meeting.—The Société belge d'oto-rhino-laryngologie met at Antwerp early in July and invited French and other specialists to attend, an official reception being tendered the visiting confrères by the municipal authorities.

Army to Fight Typhus.—An expedition to combat typhus in Poland is being organized in Paris under the command of Harry L. Gilchrist, Col., M. C., U. S. Army. The expedition will consist of 550 officers of the Medical Corps, and volunteer sanitary experts.

Reappearance of Belgian "Scalpel."—The dean of medical journals in Belgium, *Le Scalpel*, has taken the initiative to merge in one single and important journal the various small medical journals published in Belgium before the war, none of which have been revived to date.

The Pozzi Sale.—The last week in June the collections of the late Professor Pozzi were auctioned off at the Petit galleries at Paris. The collection included thirty choice paintings of different schools, tapestries, bronzes, antique rugs and furniture, miniatures, etc., all said to have been selected with exquisite taste.

Tuberculosis Funds at Madrid.—The *Fiesta de la Flor* (Flower Day), held annually at Madrid for the purpose of collecting funds to care for tuberculous patients, produced this year the sum of 160,000 pesetas (about $32,000), which is the largest amount collected since this custom was inaugurated six years ago. It is estimated that tuberculosis causes 50,000 deaths every year in Spain.

Swiss Ophthalmologic Congress.—The twelfth annual meeting of the Gesellschaft der schweizerischen Augenärzte was held at Basel in July. The principal subjects discussed were detachment of retina and injections of milk in treatment of various eye affections. Vogt of Basel reported the experimental production of cataract by isolated short-waved ultra red plus red rays. Also experimental depigmentation of the living iris by the same. Also a demonstration of the visibility of the endothelium of the living cornea by means of the cornea microscope and Gullstrand's lamp.

Losses in the Profession in Italy During the War.—The *Riforma Medica* cites recently published statistics to the effect that 1,060 members of the medical and nursing professions in Italy died from wounds or illness contracted at the front. This includes 317 army physicians, 10 in the navy, 42 of the Red Cross service and others in the merchant marine, to a total of 377 registered physicians. There were also 216 medical students killed and 40 pharmacy students, 23 veterinarians and 22 veterinary students. Orderlies, nurses and others bring the total to 1,060, and 300 of this number had been decorated for special gallantry or devotion or both. Of the 377 physicians, 30 died in prisons in Austria, Hungary or Germany or at the front in Macedonia, Albania or Libya.

Child Welfare Methods in France.—The officials of the Department of the Seine Inférieure, with a population of about 2,000,000, have taken over and provided for the permanent maintenance of an organization for the protection of mothers and children which was installed by the American Red Cross in 1918. The organization includes a model clinic for children, prenatal clinic for prospective mothers, a dental clinic, a school for social service workers, courses for midwives, school teachers and students, a maternity hospital with a capacity of 1,600, a school for children accompanying prospective mothers, a children's hospital with 100 beds, and a model dairy farm. This work has been in charge of Dr. Walter R. Ramsey, St. Paul, assistant professor of pediatrics in the University of Minnesota Medical School.

Typhus Train Aids Russian Refugees.—A specially equipped typhus train, financed by funds supplied by the Interallied Sanitary Commission and managed by the Red Cross, has traveled from Vladivostok to the Ural Mountains, its staff of physicians and nurses ministering to persons afflicted with the malady and instructing the people in preventive measures. At the present time this train is operating among the soldiers of the Kolchak government on the Perm front. Many carloads of drugs and medical supplies have been provided for the men of the Russian army. A special Red Cross mission, which recently made a survey of the situation in western Siberia, found that many of the hospitals had been stripped of drugs, instruments and surgical dressings. The Red Cross is equipping these institutions. In all, about 40 tons of drugs have been shipped from America since last September. About 1,500 refugees remain in and around Vladivostok, and these have been concentrated in barracks a few miles outside of the city. Labor is in demand around Vladivostok, and this fact has greatly reduced the number of refugees.

Medical Assistance to Siberia.—Drugs, clothing, foodstuffs and miscellaneous supplies valued at more than $5,000,000 have been distributed over Siberia by the American Red Cross during the last nine months. At present nine hospitals are being operated by the organization in Siberia with a total capacity of 4,000. The relief work of Siberia has been in charge of Dr. R. B. Teusler, who has for several years been in charge of the St. Luke's Hospital, Tokyo, Japan. The headquarters of the commission are at Vladivostok where two hospitals are being maintained. New hospitals were established recently at Irkutsk and Chelyabinsk. The other Red Cross hospitals are at Omsk, Tumen, Tomsk and Novonikolaevsk. A hospital for typhus fever is also in operation at Petropavlovsk. The spread of typhus in this territory has been checked to a great extent by the establishment of bathing and disinfecting stations along the line of the railway. At one of these stations at Ekaterinenburg, in one month, baths were provided for 35,000 persons, the clothing of these persons was disinfected, and new garments supplied wherever necessary.

Deaths in the Profession Abroad.—Dr. **M. de Tolosa Latour**, Madrid, one of the most prominent physicians of Spain, died in the early part of June. Dr. Tolosa Latour was a member of the Royal Academy of Letters and had been a leader in public health matters, especially in all relating to child

hygiene and tuberculosis prevention. He was also instrumental in founding the first seashore sanatorium for children in Spain. He had been for many years a frequent contributor to medical journals and an author of note. He was founder of the Sanatorio Maritimo at Chipiona, secretary for fifteen years of the Consejo Superior de Protección a la Infancia, and leader in welfare work for young children in general.——The death is reported of Dr. **Luigi Luciani**, professor of physiology and rector of the University of Rome, senator since 1905, long member of the Consiglio Superiore della Istruzione and of numerous scientific societies at home and abroad, aged 79. The Neurologic Society of London elected him to fill the place left vacant by the death of Brown-Séquard. His name is connected particularly with the periodical activity of the heart, the motor and sensory centers in the brain, the cortical pathogenesis of epilepsy, the static action of the cerebellum, and the physiology of fasting. In his research and in his teaching he was guided by the conception of the unity of medical science in general and the inseparability of physiology and pathology, always urging his pupils to "think physiologically."——Dr. **Gabriel Corin**, professor of legal medicine at the University of Liége after serving as assistant professor of physiology, founder of the *Archives Internationales de Médecine Légale*, and frequent contributor to scientific journals, especially those devoted to physiology, anthropology and criminology.

LATIN AMERICA

Sanitary Regulations in Haiti.—The new sanitary regulations adopted in Haiti have been recently published in the *Official Journal* of that country.

Hookworm Disease in Salvador.—The first permanent station to combat hookworm disease in the republic of El Salvador has been opened by the Rockefeller Foundation in the city of Santa Ana.

Sanitary Campaign in Costa Rica.—The last message of the president of Costa Rica states that the government intends to carry out during the present year an active sanitary campaign all over the republic.

Permanent Pharmaceutical Exhibition in Paraguay.—The National Society of Pharmacy of Paraguay has decided to commence a permanent exhibition of pharmaceutical, biological and chemical products, laboratory apparatus and in general of everything relating to pharmacology.

Physicians in Chile.—According to the report on public education in Chile for 1917 just published, there were granted during that year by the University of Chile, 327 degrees of doctors in medicine, 201 degrees of masters of medicine, and 351 degrees of bachelors of medicine, out of a total of 9,217 degrees conferred by the university.

Yellow Fever in Ecuador.—The director of sanitation of the Guayas department has presented a report to the government on the work so far conducted by the Rockefeller Foundation against yellow fever in that country. The results are already apparent in the gradual decrease of yellow fever at Guayaquil as shown by the number of cases which were eighty-eight in December and only seventeen in March.

Medical Students in Paraguay.—During the year 1918 there were in the School of Medicine of Paraguay two professors and forty-three first year students and in the School of Obstetrics two professors and twenty-four students. The School of Pharmacy had seven professors and sixteen students. The government has provided the necessary funds for the opening of a labgratory and institute of physiology.

Quarantine Regulations in Santo Domingo.—The new quarantine regulations prescribed by the director of public health of Santo Domingo were put in force, July 1. According to these regulations, the quarantinable diseases are cholera, smallpox, yellow fever, typhus fever, bubonic plague and leprosy.——New regulations for the eradication of mosquitoes have also been adopted and published in the *Official Journal*.

Uniformity in Vital Statistics.—One of the regulations adopted at the First American Congress of Commercial and Economical Expansion held recently at Montevideo, recommends that the different American governments organize systematically their services of vital statistics so that they can soon begin the annual preparation of mortality tables. It is also recommended that the capital of some American country be designated for the location of an international office of demography, Santiago de Chile being suggested for that purpose.

PARIS LETTER

PARIS, July 3, 1919.

Special Privileges for the War Wounded

A recent order of the Paris prefect of police establishes the use of special car tickets to be furnished to war-blinded or mutilated men whose condition makes long standing in line difficult. These special tickets will permit them to go out on the platforms of the "Metropolitan" instead of waiting in the line.

Death of Professor Carrieu

The death of Dr. Carrieu, aged 66, who held the chair of clinical medicine at the Montpellier School of Medicine, has been reported.

A Special War Fund

The special war fund committee of the Association générale des médecins held a meeting recently at the Paris School of Medicine, under the presidency of Dr. Louis Mourier, undersecretary of state for the medical department of the army. Drs. Bourgeois, Bellencontre and Bongrand spoke somewhat at length of the activities of the war fund committee, pointing out the various forms of aid that had been rendered by the society. The sum of $180,000 has been disbursed, which has inured mainly to the benefit of the physicians of the invaded territory, the widows and orphans of physicians, and students bereft of the necessary resources to continue their studies.

Competitive Examinations for Hospital Internships

The question of the resumption of the French custom of holding competitive examinations to decide what candidates shall be admitted as hospital interns possesses, at this time, a lively interest in certain circles. In September, 1918, the so-called provisional interns presented to the examining board a petition to the effect that they might be granted the privilege of entering on their full rights as interns without further examination. In answer to this petition the examining board has reached the following decision:

The provisional interns who were appointed as a result of the competitive examination held in 1913; who, at the present time, are actually serving as such; who have belonged at least a year either to a fighting unit or to a field unit; or who, if they remained in the army for less than a year, were granted a furlough or a permanent discharge for reasons of disability; or who have been given a compensation allowance on account of wounds or sickness; or who have, for similar reasons, been transferred to the reserve, are hereby appointed hospital interns without further examination. The so-called externs who were declared admissible to the competitive examination for internships held in 1913, provided they have taken part in all the tests of this examination and have fulfilled otherwise, from a military standpoint, the conditions enumerated above, are hereby appointed provisional hospital interns without further examination. The first competitive examination for hospital internships to be held in the future will be reserved exclusively for: (1) hospital "externs" who have fulfilled the conditions enumerated above, and (2) provisional interns who were not mobilized or who were not mobilized under the conditions indicated above; including also women who have been admitted as provisional interns.

LONDON LETTER

LONDON, July 2, 1919.

Defeat of the Dogs' Protection Bill

The opposition of the profession to the dogs' protection bill (THE JOURNAL, June 14, p. 1782) has been successful. The third reading has been defeated by a majority of 101 to 62. Sir Watson Cheyne led the opposition. He said the bill ought not to be proceeded with, because it implied very grave censure, for which there was no justification, on a large body of honorable men and on a great profession. He did not think the house recognized what an amount of obloquy and abuse had been poured on men who were trying to obtain knowledge which might be of great value to mankind. The original act relating to vivisection was founded on the prevention of unnecessary pain being inflicted on animals; the house had gone fully and carefully into the matter; and to pass this bill now would imply that cruelty was being inflicted and that the medical profession delighted in torture. When he began bacteriologic research, which was then in its infancy, he had difficulty in obtaining admission to a licensed laboratory and in securing two signatures on his license, because at that time practicing surgeons and physicians did not think very much of bacteria, and in some cases were entirely opposed to Lord Lister's revolutionary

surgery. Now it was proposed to add another restriction in the form of a certificate to show that no animal other than a dog could be used for the purpose of a desired experiment. There was a great deal of exaggeration about experiments on animals. It was monstrous to say they were going to get results by watching patients or by postmortem examination. In the case of poison gas were they to sit still and watch the patient till he died? Because that was what it came to if they were not to be allowed to use dogs. The whole history of medicine was full of instances of prolonged observation of patients and postmortem examinations without arriving at any result, and something achieved almost at once by experiment.

Presentation to Sir William Osler

Some of the pupils, colleagues and friends will present to Sir William Osler a collection of essays on the day before his seventieth birthday, which falls on July 12. The presentation will be made by Sir Clifford Allbutt at the Royal Society of Medicine. The contributions to the volume were collected by a committee of which Dr. William H. Welch was chairman and Dr. Casey A. Wood was secretary. The committee was composed of the following American members: Drs. Harvey Cushing, Charles L. Dana, Field H. Garrison, Abraham Jacobi, G. E. de Schweinitz, Henry Barton Jacobs, Francis J. Shepherd and Horatio C. Wood. The British members were Col. J. G. Adami, F.R.S., Dr. Raymond Crawfurd, Sir Bertrand Dawson, Sir William Fletcher, Prof. Arthur Keith, Sir Andrew Macphail (McGill University, Montreal), Sir D'Arcy Power, Sir Humphry Rolleston, and Dr. Charles Singer of Exeter College, Oxford, who has acted as secretary of the English section. An engraved portrait of Sir William Osler forms a frontispiece reproducing as nearly as possible the printers' and binders' arts of the fifteenth century. The essays formed two large octavo volumes each, of over 700 pages. The number of contributors both English and American is about 100. The contributions cover the history of medicine, medical education and research, pathology and therapeutics, thus reflecting the interest of Sir William Osler. There will be only one printing of the book, and the supply is limited to subscribers. The subscription is $10.

Deaths from Arsphenamin (Neo-Arsphenamin)

Distressing fatalities from the use of arsphenamin (neo-arsphenamin) continue to occur, though they are frequently not recorded in the medical press. Within ten days three deaths have occurred at the Royal Infirmary, Hull, in which the patients manifested epileptiform convulsions after the injections. At St. George's Hospital, London, a girl aged 16 was treated with injections of the novarsenobillon brand of neo-arsphenamin. An injection which was to have been the last proved fatal. A crop of these cases occurred during the war and were put down to some chemical impurity in the drug, which came from the same firm. In the present case the medical evidence was to the effect that death was due to pneumonia consequent on injection of the novarsenobillon.

MEXICO LETTER

MEXICO, July 13, 1919.

Reappearance of Yellow Fever

Yellow fever, which for many years used to ravage our ports regularly, but which has not been present for a long time, has appeared again in the state of Yucatan, causing the death of two persons. The disease has assumed epidemic form and has spread to the states of Campeche and Chiapas. The sanitary authorities have taken the necessary precautionary measures and have reported the presence of the disease to the sanitary authorities of other countries, as required by international conventions. It is expected that a commission of bacteriologists will be appointed to carry out confirmatory studies in regard to the etiologic rôle which *Leptospira icteroides* plays in the disease according to the investigations of Noguchi. These studies were first known here through the article published in THE JOURNAL. The reappearance of yellow fever furnishes an excellent opportunity to make further investigations with respect to inoculation and immunotherapy in connection with the disease, since it appears that the etiologic germ is already known.

The Organization of the Mexican Medical Association

The organizing committee for the proposed Mexican Medical Association has been appointed. It will be the endeavor of the committee to secure the indorsement of the plan on the part of the physicians, and it will also prepare by-laws for the association. Dr. Eduardo Licéaga has been elected honorary president, Dr. Gregorio Mendizábal, president, and Dr. Jesus Monjaras, secretary, in addition to other physicians who will act as vice presidents, treasurer and members of the committee. The secretary's address is calle Ezequiel Montes, No. 11, Mexico City.

The Prohibition Movement

The governor of Sonora has ordered that any one found manufacturing alcoholic drinks or dealing in them shall be shot.

Repeal of Tax on Physicians

The tax on the exercise of the liberal professions, which included that of medicine, has recently been repealed.

Regulation of the Practice of Medicine

The state of Puebla has promulgated a law governing the practice of medicine in accordance with which this profession can be practiced in that state only by those persons possessing legally acquired degrees and who can prove their identity. In towns in which there are no licensed physicians, laymen may be permitted to practice after filing the proper application and obtaining a permit, which will be granted only after an examination has been passed with a view to ascertaining the character of the applicants, education and their knowledge of the healing art. So far only the states of Jalisco and Puebla have legislated on this subject. In the other states complete freedom, with the abuse of privilege, prevails, the existing condition being called here, probably for euphemistic reasons "liberatad de profesiones" (professional liberty).

Personal

Dr. Macias, the president of the University of Mexico, has returned from the United States where the honorary degree of LL.D. was bestowed on him by the University of Arizona. He visited several colleges in Arizona and also in Texas and California.——Dr. S. Burt Wolbach, of Harvard, who came to this country to make certain studies on typhus fever, has returned to the United States. No report of the result of his investigations was made by him here.——Dr. Aristeo Calderón, a member of the National Academy of Medicine for many years, a legal expert of the courts of justice and lately chief of the medicolegal corps of the army, died, July 4, of pneumonia.——Dr. Alberto Oviedo, who until recently was president of the University of Mexico, has left for the United States, where he intends to make certain special studies on behalf of the government.

Marriages

CARLTON IRA WOOD, Lieut.-Com., M. C., U. S. Navy, on duty at the U. S. Naval Hospital, New London, Conn., to Miss Margaret A. Miller of Wadsworth, Ohio, June 24.

HERMAN ALFRED HEISE, Lieut., M. C., U. S. Army, North Lake, Wis., on duty at Fort Oglethorpe, Ga., to Miss Eugenia May Rothrock, at Fort Oglethorpe, recently.

AYDELOTTE WILL WHEALTON, Chincoteague, Va., to Miss Louise Florence Dowling-Peters of London, England, at Atlantic City, N. J., June 27.

WILLIAM WELLES HOYT, Capt., M. C., U. S. Army, Chicago, to Isabel Doan Brownlee of the American Red Cross, in Paris, France, May 27.

REGINALD MYERS ATWATER, Boston, to Miss Charlotte Martin Penfield of Englewood, N. J., at Silver Bay, N. Y., July 10.

ROBERT CROW HAMILTON, Indiana Harbor, Ind., to Miss Roma Jane Earnest of Seymour, Iowa, June 26.

HARRY BRADFORD NORTON to Miss Zella Elzea, both of Center, Mo., at New London, Mo., June 29.

FRANK THEODORE WEBER, Lewiston, Minn., to Miss Alexia Regina Mauel of Ashford, Wis., June 30.

CLIFFORD JOSEPH OUELLETTE, Oconto, Wis., to Miss Katherine Walsh of Rubicon, Wis., recently.

ROBERT CONRAD MOEHLIG, Detroit, to Miss Clara Eleanor Lavelle of Anderson, Ind., June 25.

ARTHUR HENRY ORCUTT, Arcola, Ill., to Miss Helen V. Fritman of Brooklyn, July 7.

JOHN ELIAS LIVINGOOD to Miss Minnie E. Janssen, both of Wyomissing, Pa., July 1.

Deaths

John Anthony Murtagh ● Col., M. C., U. S. Army; died in the Letterman General Hospital, San Francisco, July 5, from heart disease. He was born in Pennsylvania, June 19, 1866, and was graduated from the Medical Department of the University of Pennsylvania in 1898. Colonel Murtagh entered the military service as hospital steward of the Third Pennsylvania Infantry in 1898; became an assistant surgeon in 1901, five years later was promoted to captain and assistant surgeon. He was made major in the Medical Corps in 1910, lieutenant-colonel in 1917 and colonel, M. C., National Army, Feb. 18, 1918. After the fire and earthquake in San Francisco, in 1906, Colonel Murtagh was in charge of the medical relief.

Henry McLean Cronkhite, Col., M. C., U. S. Army (retired), New York City; Albany (N. Y.) Medical College, 1858; aged 85; who served in the Civil War as a private, was made lieutenant and assistant surgeon in the Army in 1867; was promoted to captain and assistant surgeon in 1870, to major and surgeon in 1886 and was retired in 1895 on account of disability in line of duty and was made lieutenant-colonel, retired in 1904; died in U. S. Army General Hospital No. 1, New York City, June 15, from bronchopneumonia.

Oscar D. Schaeffer, Nazareth, Pa.; College of Physicians and Surgeons, Baltimore, 1886; aged 58; president and general manager of the Nazareth Paper Box Factory; treasurer of the Nazareth Waist Company; director of the Farmers Union Mutual Fire Insurance Company and of the Nazareth National Bank; for about six years postmaster of Nazareth and for a number of years investigator of inheritance taxes for Northampton County; died at his home, July 1.

Eugenie Raura Eliscu, New York City; Woman's Medical College of the New York Infirmary for Women and Children, New York City, 1893; aged 53; a Roumanian by birth; treasurer of the American Medico-Pharmaceutical League; lecturer for the New York Social Hygiene Society; an authority on psychology and sex hygiene; who was injured in an accident in the Brooklyn Subway in October, 1918, died at her home, July 11.

Willis Oliver Barney, Jr., ● Boston; Tufts College Medical School, Boston, 1912; aged 30; a specialist in diseases of the ear, nose and throat; who served as a lieutenant in the United States Naval Reserve Forces, and was relieved from active duty, February 12; died in his apartment in Boston, June 25, from injuries received by being run down by an automobile.

Herman Eichhorn ● New York City; College of Physicians and Surgeons in the City of New York, 1904; aged 37; a specialist in gastro-enterology; assistant in internal medicine at the Vanderbilt Clinic and in the neurologic department of the Mount Sinai Hospital; assistant visiting physician to the New York City Children's Hospital; died at his home, July 13.

Daniel Joseph Brown ● Springfield, Mass.; Harvard University Medical School, 1886; aged 58; a well known surgeon of western New England; a member of the Springfield Police Commission; chief surgeon of Mercy Hospital for several years; a member of the surgical staff of Springfield Hospital; died at his home, July 8, from nephritis.

Charles Aloysius Obertin, Union Grove, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1904; aged 38; a member of the State Medical Society of Wisconsin; who had been under treatment in a sanatorium in Milwaukee since November, 1918; died at the home of his brother in Milwaukee, July 1, from nephritis.

Amos J. Givens, Stamford, Conn.; Eclectic Medical Institute, Cincinnati, 1886; aged 55; superintendent and proprietor of Stamford Hall Sanatorium; a specialist in the treatment of mental diseases and drug addiction; president of the Fidelity Title and Trust Company, Stamford; died at his home, July 7, from heart disease.

Archibald I. Maclay ● Delavan, Ill.; Jefferson Medical College, 1874; aged 67; division surgeon of the Illinois Central Railroad; for fifteen years a member of the board of education and for several terms city and township health officer; died at his home, July 1, from heart disease.

Robert A. Hildebrand, Glen Rock, Pa.; College of Physicians and Surgeons, Baltimore, 1895; aged 48; a member of the Medical Society of the State of Pennsylvania; who was taken to York, Pa., for treatment; died in the automobile in front of a physician's office, July 5, from nephritis.

William Reynolds Severson, Los Angeles; University of Illinois, Chicago, 1901; aged 46; a veteran of the war with Spain; who served as captain, M. C., U. S. Army, at Camp Kearney, Calif., and was honorably discharged, March 8, 1918; died in Los Angeles, June 14.

Leslie K. Warren, High Rolls, N. M.; University of Nashville, Tenn., 1905; aged 35; formerly clinical assistant to the chair of surgery in the University of Nashville and University of Tennessee, Nashville; died in the Providence Hospital, El Paso, Texas, July 1.

William Otto Dougherty ● Arnold, Pa.; Jefferson Medical College, 1911; aged 34; first lieutenant, Medical Corps, U. S. Army, from March, 1918, until his honorable discharge, March 6, and assistant surgeon at Camp Beauregard, La.; died at his home, June 28.

George James Schuele ● Bridegport, Conn.; Yale University, New Haven, 1908; aged 41; who served as a first lieutenant, Medical Corps, U. S. Army, for a year and was honorably discharged, April 22, 1919; died at his home, July 10, after a surgical operation.

Benjamin Addison McConnell, Dover, Ohio; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; aged 56; a member of the Ohio State Medical Association; died at Union Hospital, Dover, July 9, from disease of the liver.

William Eugene Brandt, Washington, D. C.; University of Louisville, Ky., 1871; Bellevue Hospital Medical College, 1877; aged 70; acting assistant surgeon, U. S. Army, from 1874 to 1877; for many years a government employee; died at his home, June 26.

Jerome E. Moore, Springfield, Tenn.; University of Nashville, Tenn., 1859; aged 87; a member of the Tennessee State Medical Association, who sustained a fracture of the hip in a fall, June 24, died at the home of his daughter in Springfield, June 30.

Mary A. Willis, Jersey City, N. J.; Eclectic Medical College of the City of New York, 1886; aged 74; physician to the Rescue Home for Women and the Children's Paradise, Jersey City; died at her home, July 14, from heart disease.

George Williams Lewis ● New Orleans; Tulane University, New Orleans, 1867; aged 72; for several years assistant house surgeon of the Charity Hospital; died at his home, July 4, from bronchial pneumonia.

Henry Tucker Mansfield, Needham, Mass.; Harvard University Medical School, 1869; aged 38; a member of the Massachusetts Medical Society and a veteran of the Civil War; died at his home, July 6.

Edmund Burnard Squire, Auburndale, Mass.; Boston University, 1879; aged 61; a director of the Co-operative Bank of Auburndale; formerly a practitioner in Lyndenville, Vt.; died at his home, June 23.

Charles T. W. Seidel, Jackson Center, Pa.; Western Reserve University, Cleveland, 1884; aged 60; for one term prothonotary; died suddenly in Orangeville, June 24, from cerebral hemorrhage.

Allen Evan MacColl, Belleville, Ont.; Queens University, Kingston, Ont., 1891; aged 52; formerly a member of the Ontario Medical College; died at his home, May 5, from arteriosclerosis.

James D. Kiefer, Mount Carmel, Pa.; Hahnemann Medical College, Philadelphia, 1890; aged 59; for many years a member of the local school board; died at his home, July 5, from arteriosclerosis.

Henry T. Reynolds, Baltimore; University of Maryland, Baltimore, 1867; aged 75; a surgeon in the federal service during the Civil War; died at his home, July 5, from senile debility.

Jacob F. Briggs, Shickshinny, Pa.; Pennsylvania Medical College, Philadelphia, 1861; aged 83; also a druggist; a veteran of the Civil War; died at his home, July 6.

Edward Clayton Frost ● Campbello, Mass.; Dartmouth Medical School, Hanover, N. H., 1887; aged 59; died at his home, May 5, from tuberculosis following influenza.

Absalom A. Ledbetter, Hallettsville, Texas; Tulane University, New Orleans, 1870; aged 75; died at his home, June 24.

Alvin Nelson Keith, Chicago; University of Illinois, Chicago, 1883; aged 66; died at his home, June 20, from myocarditis.

● Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

DR. MILES' HEART TREATMENT

"Dr. Miles' Heart Treatment" is put out by the Miles Medical Co. of Elkhart, Ind. The history of the exploitation of this preparation is fairly typical of the history of "patent medicines" in general. Before the days of the Food and Drugs Act, when there was no penalty for falsifying on the trade package, it was "Dr. Miles' New Cure for the Heart," and the carton bore the legend:

"DR. MILES' NEW CURE is the Latest and Greatest Discovery for Weak and Diseased Hearts, and the only Safe and Agreeable one known. It is the result of vast experience and years of Scientific investigation by one of the most able and learned physicians of the age."

The trend of the advertising of the "heart cure" can be illustrated by quoting from the descriptive paragraphs in advertising material of various dates:

"Dr. Miles' New Heart Cure: a wonderful, strengthening medicine for weak heart, permanently curing all diseases of the Heart and Circulation."

This later became:

"Dr. Miles' Heart Cure, the greatest heart builder and regulator known."

And still later:

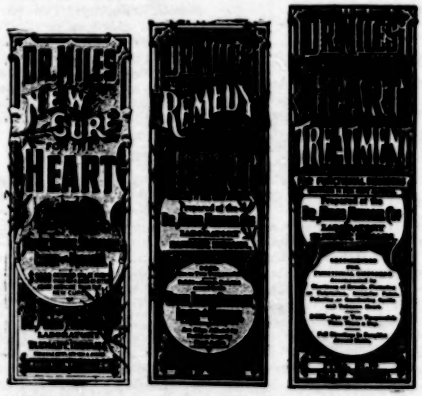
"Dr. Miles' Remedy for the Heart: a strengthening medicine and tonic for the weak heart."

And now is:

"Dr. Miles' Heart Treatment: a strengthening regulator and tonic for the weak heart."

In common with most "patent medicine" advertisements, the "scare" method has been used in exploiting this "heart treatment." The public has been assured for instance, that "one person in every four has a weak or diseased heart" and in some of the older advertising we read under a discussion of the "Treatment of a Weak Heart":

"Unless something is done to check its onward course, it will surely lead to death by the slow torture of some chronic or lingering disorder which it has induced or by the sudden snuffing out of life's flame by heart failure."



Greatly reduced reproductions of the carton of "Dr. Miles' Heart Treatment" through varying stages of truthfulness.

No information regarding the composition of Dr. Miles' Heart Treatment is vouchsafed by the manufacturers, at least beyond that which the law requires. Thus the labels used since the passage of the Food and Drugs Act admit the presence of 11 per cent. alcohol. Like other "patent medicine" exploiters the makers of this nostrum wish to retain the element of secrecy probably for the mystery that it throws over their products, and for the scope it gives to the imagination of their advertisement writers. Nevertheless they are apparently anxious to capitalize wherever possible any statements regarding the drugs used in their preparation, so the Miles Medical Company publish under the heading "What Medical Authorities Say," some quotations relative to two of the alleged ingredients of the nostrum. Some of these quotations are garbled and modifying clauses have been omitted, while in other cases the quotations are from uncritical sources.

The two drugs alleged to be ingredients of Dr. Miles' Heart Treatment, but not mentioned by name, are digitalis and cactus. It is sufficient to say at this point that careful chemical and physiologic tests have proved conclusively that, if there is any digitalis present it is there in such infinitesimal amounts as not to have the slighest therapeutic effect. Before leaving this phase of the discussion it is worth while to compare one quotation given by the Miles concern as having been given by a medical authority with that of the original. Neither the name of the author, nor the name of the drug is disclosed, however, by the Miles advertising:

AS QUOTED BY MILES	THE ORIGINAL QUOTATION
"It is of value in nearly all cases of disease where the condition is one in which the heart fails to do its proper amount of work." (*From pamphlet entitled, "What Medical Authorities Say," distributed in Chicago March, 1919.*)	"DIGITALIS is of value in nearly all cases of CARDIAC disease where the condition is one in which the heart fails to do its proper amount of work, UNLESS THE FAILURE IS DUE TO MYOCARDIAL DEGENERATION." (*From "Practical Therapeutics," A. J. Hare, 1916.*)

We have put in small capitals those parts of the quotation from Hare which the Miles Medical Company either omits or modifies. It is worthy of note that the very next sentence in Hare's book, following the quotation just given, reads: "If simple hypertrophy or excessive compensatory hypertrophy exists, it [digitalis] is harmful." This statement the Miles concern does not quote, although it has in the past recommended the nostrum for cardiac hypertrophy.

To determine the presence or absence of digitalis in Miles' Heart Treatment, a pharmacologist was asked to make physiologic tests with the preparation. The question as to whether or not there is any cactus present was not considered of any special interest, because extensive experimental work has shown that cactus grandiflorus has no physiologic action. The tests that were made by the pharmacologist, however, were such that, had Miles' Heart Treatment contained *any* drug possessing any heart action, its presence would have been disclosed. The gist of the pharmacologist's report was to this effect:

> The tests indicated that there was no digitalis body present in the preparation (in amounts that could have any therapeutic effect) in doses containing enough alcohol to induce narcosis. There was no evidence that Miles' Heart Treatment has any therapeutic effect on the heart aside from that of the alcohol which it contains, even when administered orally, in doses corresponding to those of 1,750 c.c. for a man of 70 kilos. Such doses are equivalent to more than 7 bottles of the treatment. It can be said with certainty that Miles' Heart Treatment does not exert any action which entitles it to be considered as belonging to the digitalis group, or to any other group recognized by clinicians as exerting any typical, demonstrable, pharmacologic action on the heart.

In addition to the pharmacologic tests, Miles' Heart Treatment was also subjected to chemical analysis in the A. M. A. Chemical Laboratory. A summary of the chemist's report follows:

CHEMIST'S REPORT

"Chemical examination shows Miles' Heart Treatment to be a solution of a compound, or compounds, of iron repre-

senting about 0.120 gm. metallic iron in 100 c.c., or about ⅔ grain in one fluidounce. There is also a small amount of phosphate, about 5 per cent. glycerin, a reducing substance, which may be glucose or invert sugar. No potent alkaloidal drugs could be detected. The presence of an ammonium compound was demonstrated by the liberation of free ammonia on addition of fixed alkali to the preparation. The liquid is colored with caramel. A solution of iron glycerophosphate in 10 per cent. alcohol with about 5 per cent. glycerin and a little sugar or glucose had much the same chemical properties as Miles' Heart Treatment."

How long would the "patent medicine" business last if the exploiters of these nostrums were required to publish a full quantitative formula of the active ingredients on the label, and, further, were required to tell the truth about their products? The "Latest and Greatest Discovery for Weak and Diseased Hearts," which was "the result of vast experience and years of Scientific Investigation by one of the most able and learned physicians of the age" does not loom as imposingly after it has been subjected to the test of independent chemical and physiologic investigation. A little iron, a small amount of phosphate, about 5 per cent. of glycerin, and 11 per cent. of alcohol, the mixture colored with caramel—a great discovery indeed!

Correspondence

REQUEST FOR BIOGRAPHIC DATA

To the Editor:—In revising my "Cyclopedia of American Medical Biographies" into a wholly new cyclopedia, in cooperation with Dr. Walter L. Burrage, and in adding some hundreds of names, there remain a certain number of physicians about whom we have not been able as yet to obtain needed information. I write to THE JOURNAL to ask if any of its readers can enlighten me, and if they will not kindly at once communicate with me by letter that I may complete the following biographies:

In the first place, is Dr. S. S. Herrick, eminent chemist and sanitarian of New Orleans still living? If not, when and where did he die? Is Dr. D. B. Hoffman, who wrote the "Medical History of San Diego County, California," born in 1827, still living? The same question I am compelled to ask regarding Frederick V. Hopkins, early geologist of Louisiana. One of the most important of all my biographies is that of William Anderson, who lived for a time in New York, wrote a fine "Surgical Anatomy of the Groin" in 1822, and in 1837 suggested a hospital in connection with a university of the city of New York. He was associated with Valentine Mott and Wright Post in his activities. He probably graduated in Scotland, and probably returned there.

I want in all the foregoing cases the birth, death, anything about the early life, professional accomplishments and activities of any of the gentlemen, and any reference to any published memoranda, and shall be truly grateful to any one who will help me out immediately.

HOWARD A. KELLY, M.D.
1418 Eutaw Place, Baltimore.

"METABOLISM IN PERNICIOUS ANEMIA"

To the Editor:—I would be obliged to you if you will correct the impression that you give in your editorial with this title (June 21, 1919, p. 1846) regarding our "Studies of the Chemistry of Pernicious Anemia." We did not investigate the metabolism of substances in this disease but were careful to point out that our studies were directed rather at certain general chemical investigations than to anabolism and catabolism phases. We paid no attention to the intake of food, so far as its exact chemical composition was concerned. We only stated as part of the sixth conclusion that "there is a state of suboxidation—the neutral sulphur fraction is increased," which statement is, of course, correct. But we laid no stress on this matter in the paper, and we only mentioned it casually. Our object in this research was to study the functional capacity of the various organs. You misquote us and destroy the value of our contribution to this subject by stating that the functions of the liver are reported as undamaged. We state (Conclusion 8) that "there is a deficiency in the hepatic detoxication function as shown by the sulphoconjugation test." We wrote our paper mainly to impress this finding for we believe that this may be the causative factor of this disease: the failure of the liver to neutralize the poisons generated in the gastro-intestinal tract, resulting in the absorption of these poisons by the blood with the resulting blood destruction.

MAX KAHN, M.D., New York.

"PROTEOGENS"

STATE OF OHIO, STATE DEPARTMENT OF HEALTH.

To the Editor:—I note in the issue of THE JOURNAL for July 12, a statement regarding the so-called "Proteogens" manufactured by the Wm. S. Merrell Company of Cincinnati.

My attention has been called to the fact that salesmen of this company have been exhibiting a letter purporting to show that this department has endorsed their products in the treatment of venereal diseases. The letter in question was written by a physician employed in one of the clinics conducted jointly by this department and the U. S. Public Health Service, and the stationery of the department was used without authority. The physician in question has made numerous efforts to recall the letter, but the Merrell people profess an inability to control its use.

I need not add that this department has not endorsed and will not endorse these products, and has no evidence that they are of any value whatsoever.

ALLEN W. FREEMAN, M.D., Commissioner of Health.

"THE NEUROLOGY OF CERVICAL RIBS"

To the Editor:—Dr. Church, in his paper on "The Neurology of Cervical Ribs" (THE JOURNAL, July 5, 1919, p. 1), says: "No textbook on nervous diseases makes the slightest detailed mention of cervical ribs in connection with brachial plexus disorders," etc. In the second edition of Jelliffe and White, Diseases of the Nervous System, 1917, is a discussion of the subject, and (p. 366) a roentgenogram with the caption: "Double cervical rib causing mixed type of brachial palsy." In several places the relation of cervical rib to brachial plexus disorders is given in detail. Dr. Church further states that cervical ribs have never been observed in the first, second or third ribs. In the textbook just mentioned will be found in the section on cervical rib (p. 378): "Thomas Murphy has recorded a case in which the symptoms were due to the pressure of the first rib. A similar case is reported by Sherren."

SMITH ELY JELLIFFE, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE SEPTIC VIBRIO

To the Editor:—I am a discharged soldier about to enter the state university this fall. Across the ocean, during my stay as a patient in a hospital, I heard of a parasite known as the *Vibrion septique*, and cannot seem to get any definite information as to its character or morphology. Will you kindly give me any information you may have available?

H. G. WELLS, Waterbury, Vt.

ANSWER.—The *Vibrion septique* (*Bacillus septicus, B. oedematis*, bacillus of malignant edema) was discovered by Pasteur in 1876. The next year, 1877, Pasteur and Joubert (*Bull. de l'Acad. de méd.* 187:793) established the principal characters of the vibrio and called the sickness produced by it acute experimental septicemia. Koch and Gaffky (*Mitt. a. d. k. Gsndhtsamt.* 1881, p. 52 et seq.) gave it the name, bacillus

of malignant edema. Mice and guinea-pigs are exceedingly sensitive to it. Chauveau and Arloing discovered about 1884 that *Vibrion septique* was the cause of gas gangrene in man. The traumatic gangrene of some animals is also due to it. The organism is about the size of the anthrax bacillus (7 by 0.8 microns) but narrower, and the ends are not so square cut. It is gram-negative unless the staining with gentian violet is prolonged. It thrives well on culture mediums. It kills a guinea-pig in two days. Although it is considered to be the cause of gas gangrene it is not the sole cause, for *B. phlegmonosus-emphysematosus* of Fraenkel and *B. aerogenes-capsulatus* of Welch and Nuttall produce it also, as well as other germs. For further details one may consult any good textbook on bacteriology.

STRENGTH OF EPINEPHRIN FOR LOCAL ANESTHESIA

To the Editor:—Please give me the following information:

1. What strength of epinephrin (adrenalin) should be used in injecting tonsils for local anesthesia?
2. What are the dangers of strong solutions of epinephrin, aside from the secondary hemorrhage?
3. Would 1 dram of 1:1,000 solution of epinephrin to the ounce of 1:500 cocain, and using 2 drams in each tonsil, be dangerous?

Please omit my name. B. E. M.

ANSWER.—1. From 10 to 15 drops of the 1:1,000 solution of epinephrin per ounce of anesthetic solution is the strength usually employed.

2. The chief danger of strong solutions lies in the possibility of injecting it inadvertently into a vein, in which case 1 c.c. of a 1:1,000 solution might produce most alarming and even fatal results from overwhelming effect on the circulation. In subcutaneous infiltration, there is the additional danger of necrosis from excessive vasoconstriction; but this probably does not apply to as vascular a tissue as that of and around the tonsil.

3. The addition of 1 dram of a 1:1,000 solution of epinephrin to the ounce of 1:500 cocain would probably not be very dangerous; but the concentration is greater than that usually employed; and, when the solution is used as freely as 2 drams per tonsil, it might not be entirely devoid of danger.

PROTECTION OF BOOKS AGAINST INSECTS

To the Editor:—I should like to know a way to protect my library against the insects that are now destroying it. I have used without success powdered pepper, "Noflatine" and formaldehyd fumigations.

PEDRO POEY, M.D., Batabanó, Havana, Cuba.

ANSWER.—Powdered pepper and formaldehyd fumigations have practically no effect on insects attacking libraries. The U. S. Bureau of Entomology recommends fumigation of the library with hydrocyanic acid gas, or the placing of the books in a tight container, such as a wooden box well lined with paper, and fumigation with carbon disulphid. Proper precautions must, of course, be taken, especially in using hydrocyanic acid. Both these substances can be obtained in Cuba. Instructions (in English) for applying them will be found in Farmers' Bulletins 699 and 799, and might perhaps be obtained also in Spanish from the Department of Sanitation, Havana, Cuba.

ARMY DISCHARGE PAPERS

To the Editor:—In the discharging of medical officers from Army service, the only honorable discharge received by many was an order stating that for "convenience of the government," the following named will be discharged. Then follows a long list, including the officer to whom the communication is addressed. Will this be the only discharge given such men? C. M. MUSSELL, M.D., Matherville, Ill.

ANSWER.—The language used in the discharge notice is that prescribed by the War Department, except that when only one individual is discharged at a time his name is inserted in the body of the order instead of at the end. In addition to this order each officer discharged is entitled to a formal discharge certificate. These certificates were not authorized until December, 1918; it was provided at that time that those who had not been given the certificate could obtain it by application to the Adjutant-General of the Army.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 2. Sec., Dr. L. P. Dawes, Juneau, Alaska.
HAWAII: Honolulu, Sept. 9-11. Sec., Dr. J. R. Judd, Honolulu, Hawaii.
NEW HAMPSHIRE: Concord, Sept. 11-12. Sec., Dr. Chas. Duncan, Concord, New Hampshire.

New York March Examination

Mr. George M. Wiley, director, Examinations and Inspections Division, reports the written examination held at New York City, March 11-14, 1919. The examination covered 8 subjects and included 10 questions. An average of 75 per cent. was required to pass. Of the 148 candidates examined, 134 passed and 14 failed. The following colleges were represented:

College	Year Grad.	No. Licensed
PASSED		
Bennett College of Eclectic Med. and Surg.	(1907)	1
Harvard University	(1919)	1
Columbia University, Coll. of Phys. & Surg.	(1919)	51
Fordham University	(1917) (1919, 48)	49
New York Homeo. Med. Coll.	(1917)	1
University and Bellevue Hosp. Med. Coll.	(1919)	31
FAILED		
Tufts College	(1917)	1
Columbia University, Coll. of Phys. & Surg.	(1919)	4
Fordham University	(1919)	2
University and Bellevue Hosp. Med. Coll.	(1919)	6
Medical College of Virginia	(1915)	1

Dr. Wiley also reports that between March 25 and May 1, 1919, 6 candidates were licensed by endorsement of their credentials. Of these one was granted a reregistration license, 3 were granted diplomas by reciprocity with other states, and 2 were licensed by endorsement of their diplomas on the basis of eminence and authority in the profession. Of those licensed by reciprocity and endorsement of credentials the following colleges were represented:

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
New York Homeo. Med. Coll.	(1899)	New Jersey; (1916) New Jersey
Woman's Medical College of Pennsylvania	(1903)	New Jersey
ENDORSEMENT OF DIPLOMAS		
Kentucky School of Medicine	(1899)	
Harvard University	(1886)	

Minnesota April Examination

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral and written examination held at Minneapolis, April 1-3, 1919. The examination covered 15 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 18 candidates examined, 15 passed and 3 failed. Eleven candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	(1913)	82.2
University of Illinois (1919) 89.1, 89.5, 91.		
Harvard University	(1912) 94.3; (1918) 95.5; (1919)	92.6
University of Minnesota	(1918)	92.8*
Albany Medical College	(1895) 78; (1911)	87.9
Columbia University Coll. of Phys. and Surg.	(1918)	89, 92.2
Cornell University	(1911)	93
Miami Medical College	(1900)	88.3
University of Pennsylvania	(1917)	85.5
FAILED		
College of Medicine and Surgery, Physio-Medical	(1909)	64
University College of Medicine, Richmond	(1909)	66
Montreal School of Medicine and Surgery	(1898)	33

*Granted M.B. degree in 1918 after completing four year course; will receive M.D. after completing his intern year.

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
American Medical Missionary College	(1904)	Illinois
Chicago College of Medicine and Surgery	(1917)	Illinois
Rush Medical College	(1905) North Dakota, (1914)	Illinois
University of Illinois	(1914)	Wisconsin
University of Michigan Medical School	(1916)	Michigan
University of Minnesota	(1902)	N. Dakota
Long Island College Hospital	(1910)	N. Dakota
Miami Medical College	(1908)	Ohio
Vanderbilt University	(1917)	Tennessee
Queens University	(1902)	Wisconsin

Book Notices

JOHN COAKLEY LETTSOM AND THE FOUNDATION OF THE MEDICAL SOCIETY. Being the Presidential Address Delivered Before the Medical Society of London on October 8th, 1917. By Sir St. Clair Thomson, M.D., F.R.C.P., F.R.C.S. Paper. Price, two shillings and sixpence. Pp. 63, with illustrations. London: Harrison and Sons, 1918.

The Medical Society of London was organized in 1773 by Dr. John Coakley Lettsom, the physician on whose name was written the historic doggerel which has so often been quoted as expressing the attitude of some of the medical profession,

> "When any sick to me apply,
> I physicks, bleeds, and sweats 'em;
> If after that they choose to die,
> What's that to me, I. LETTSOM."

Sir St. Clair Thomson, one of our foreign guests at the Atlantic City Session, president of the Medical Society of London for 1917 and 1918, took as the subject of his presidential address the life and character of his first predecessor in office. The address is published in pamphlet form and is a fascinating biographic study of professional life and conditions in England from 1750 to 1815. Although born in the West Indies and early left an orphan without friends or influence and very little money, Lettsom in 1766 settled in London at the age of 20 and in a short time developed a practice and professional standing that placed him at the head of his profession by the time he was 40. His biographer states that his income from 1786 to 1800 ranged from five thousand to twelve thousand pounds a year, or practically $25,000 to $60,000. The successful medical practitioner led quite as strenuous a life then as now. In 1791, at the age of 47, he says, "During the last nineteen years, not one holiday have I taken." In another letter he complains that his practice had not suffered him to sleep in his own bed for thirteen nights. That he was a systematic and tireless worker is shown by his voluminous correspondence which, of course, in those days was carried on entirely by hand. At one time he had more than two hundred correspondents on professional, scientific and personal matters. Nearly all of his letter writing was done in his carriage. His outside interests were quite as extensive and absorbing as his professional work. In 1770, he founded the first general dispensary in London. In 1773, he organized the London Medical Society. He was an active member and lecturer of the Royal Philosophical Society, and one of the founders of the Royal Humane Society. He was a personal friend and supporter of Edward Jenner, and an ardent advocate of vaccination. His personal friendship for John Howard led him into much activity for prison reform. He was during his entire life deeply interested in botany, agriculture and fossils. He organized soup kitchens, wrote tracts, delivered lectures on the effects of hard drinking, cultivated bees, formulated plans for the management of boarding schools with special regard to diet, clothes, games and sanitation, and was greatly interested in the history of medicine. In 1801, he published three volumes of essays in which appear discussions of such subjects as poverty, prostitution, the education of the blind, the treatment of the deaf and dumb, the prevention of hydrophobia, and the use of substitutes for wheat in making bread. The last subject became one of public interest and importance during the Napoleonic wars, just as it has been during the late world war. Not only did the price of bread rise, but also the quality and size of the loaf diminished. Lettsom recommends Indian corn, potatoes, rice and other substitutes for wheat bread. Especially interesting are his relations to the United States. Benjamin Rush was an intimate friend, and in a book of memoirs published in 1817, it appears that a large tract of land on the Susquehanna River belonging to Dr. Rush was named after Dr. Lettsom. He first sent Jenner's vaccine lymph across the Atlantic, assigning it to his friend, Dr. Waterhouse, professor of medicine at Harvard University. His correspondents included Washington and Benjamin Franklin. Harvard University in 1790 gave him the degree of LL.D. He was an honorary member of the medical societies of New York, Massachusetts and Philadelphia, of the Massachusetts and Philadelphia Humane Societies, of the Pennsylvania Society for the Abolition of Slavery, and of practically all the scientific and historical societies that then existed in America. His work, which increased as he grew older, lasted almost until the day of his death, which occurred in his seventy-first year after an illness from pneumonia of only a few days.

This biographic sketch is a historical document of great interest and fascination, giving with unusual vividness a picture of professional life of a century and a half ago. It is charmingly written and copiously illustrated.

SURGERY IN WAR. By Alfred J. Hull, F.R.C.S., Lieut.-Col., Royal Army Medical Corps. With a Preface by Lieut.-Gen. T. H. J. C. Goodwin, C.B., C.M.G., D.S.O., Director-General, Army Medical Service. Second edition. Cloth. Price, $6 net. Pp. 624, with 210 illustrations. Philadelphia: P. Blakiston's Son & Co., 1919.

There are today, roughly speaking, four classes into which current medical literature may be divided: In the first group we may assemble the so-called research papers which deal with theories and phenomena in the field of the medical sciences from the standpoint of their truth or falsity. In a second group we may assemble papers of the nature of case reports, presenting the result of practical experience and, in a growing percentage of cases, justifying the term "clinical research" which has been applied to the type of work they represent. In a third group we find those books and monographs which treat of their subject from the standpoint of the principles involved, omitting detailed analyses, giving a bird's-eye view, so to speak. In the fourth group we find the so-called books of reference, in which great attention is paid to that detail and close analysis which works of the preceding group seek to condense and formulate into broad generalizations. It is in this group that we should place the book under discussion. Bearing in mind the author's statement: "The object of this book has been to give members of the profession who have not practiced war surgery an account of the treatment which has proved efficacious in our hands. Symptomatology and details of treatment, which are found in textbooks of general surgery, have not been repeated. The book is not intended to be in any sense complete. Surgical knowledge is presupposed, and our efforts have been mainly directed to recounting methods of treatment of the more common injuries met with in war," we are inclined to credit the author with underestimating the value and scope of his work. If we were to offer adverse criticism, it would deal with the illustrations. There are numerous sketches accompanying the text. The book would present a much more finished, workman-like appearance if the majority of the sketches had been submitted to a capable artist for revision before publication. Secondly, it seems to be almost inexcusable that a publisher should permit the appearance of a high grade book, such as this, with a full page illustration turned upside-down. Apparently the publishers are feeling the pinch of the universal shortage of labor. In spite of this slight mechanical disability, "Surgery in War" is one of the best books on the subject that we have seen.

THE EARLY TREATMENT OF WAR WOUNDS. By Colonel H. M. W. Gray, C.B., C.M.G., M.B., Consultant in Special Military Surgery. Cloth. Price, $3.75. Pp. 299, with 25 illustrations. New York: Oxford University Press, 1919.

One of the greatest difficulties with most authors writing on medical subjects is that of stating their problem and its solution without a great deal of unnecessary exposition, and without dragging in a whole family of distantly related and entirely superfluous matters. In this book, Colonel Gray has overcome the difficulty, and presents the essential facts with refreshing simplicity and vigor. He does not write from the standpoint of a man with a theory to prove; rather, as one reads the book, the impression grows that here is an earnest, scientific surgeon of wide experience endeavoring to tell the simple truth without bias and, incidentally, without that "holier than thou" attitude which the advocates of particular plans of treatment are so prone to adopt. The first six chapters deal with the general management of the wounded, the essentials of first aid, the treatment of shock, the use of antiseptics and dressings, and the principles of the operative treatment of war wounds, great stress being

laid on the early and complete excision of devitalized tissue as a fundamental in the prevention of wound sepsis. The remaining five chapters deal with the treatment of wounds of special regions, considering in particular wounds of the brain, the thorax, the spinal cord, compound fracture of the femur, and wounds of joints. Abdominal wounds are not given consideration. The author says: "I have not written anything on abdominal wounds. It has always seemed to me that a surgeon who has mastered the technic of successful excision of an ulcerating cancer of the colon is capable of obtaining as good results as possible if he applies the same principles in the treatment of war wounds of the abdominal organs coupled with those used in combating spreading peritonitis." This volume deserves a place on the shelves of every medical library.

Medicolegal

Contributory Negligence and Evidence in Malpractice Case

(Summers v. Tarpley (Mo.), 208 S. W. R. 266)

The Springfield (Mo.) Court of Appeals, in reversing a judgment obtained by the plaintiff for $500 damages for alleged malpractice, and remanding the case for a new trial, says that, in jumping from a vehicle on account of the team's running away, the plaintiff broke the small bone of her left leg about 3 inches above the ankle, and fractured the larger bone near the ankle joint. The defendant who, the record showed, was what is commonly called a "country doctor" and was not equipped for accurate diagnosis, diagnosed the injury as a dislocation. He testified that he put the disarranged parts back in position to the best of his judgment, bound the leg with ordinary bandage, covered it with cotton, and strapped it in a metal splint. This splint was taken off at the end of seven days. About fifteen days after the injury, he first realized that the bones were broken, and put the splint back on. The bones were not put in proper apposition, however, and the result was a somewhat deformed ankle. He gave as an excuse for not diagnosing more thoroughly in the first instance that the plaintiff's father and mother would not permit him to administer chloroform, claiming that the plaintiff had a weak heart. The defendant also testified that he insisted on the family's getting another physician to aid him, which they declined to do, and again declined to do when, at the end of the fifteen days, he realized that the bones were broken and asked for another physician to help him. He said that he did in both instances the best he could under the circumstances. The evidence for the plaintiff, on the other hand, tended to show that the defendant no time made a request for assistance, but insisted all the time that the injury was only a dislocation, and that he did not need any assistance.

The plaintiff not having charged in her petition that her deformed ankle was due to the defendant's lack of skill, but was due to his unskilful and careless treatment, there was no error in the trial court's refusing to permit him to prove his general reputation as a skilful physician.

Nor was there error in an instruction to the jury to the effect that the burden was on the defendant of proving to the reasonable satisfaction of the jury by a preponderance of the evidence the defense of contributory negligence, the court being of the opinion that the evidence offered by the defendant tending to establish that the plaintiff's deformed ankle was due to her own negligence and that of her family in failing to procure assistance was the defense of contributory negligence pure and simple. It will be observed that the defense of negligence on the part of the patient is, in a malpractice case, called contributory negligence as in any other kind of case. It is clear that the alleged negligence of the plaintiff in this case, if established, would constitute a complete defense, and this court knows of no other term than "contributory negligence" to designate that character of defense. Contributory negligence as a defense in malpractice cases is recognized by all authorities, but some differ as to the effect of negligence of the patient after operation or treatment in failing to observe the directions of the physician. But the court holds it was reversible error to permit physicians called on behalf of the defendant to be asked, on cross-examination, if they ever treated a patient that was left in that condition by similar injury, having reference to the condition of the plaintiff's ankle. It was improper cross-examination, and prejudicial. Aside from the force of the situation tending to elicit a negative or noncommittal answer, the plaintiff would be establishing that the defendant was negligent by proving what some other physician had or had not done. If a physician under such circumstances should answer in the affirmative, then a defendant, situated as in the case at bar, would be entitled to have the physician explain. He could go into all the details of the collateral case, which would lead far afield from the issues, and into matters wholly irrelevant.

Evidence of Fraud by Itinerant Doctor in Obtaining Note

(Security State Bank of Wichita v. Scrunier (Kan.), 178 Pac. R. 239)

The Supreme Court of Kansas, in reversing a judgment obtained by the plaintiff bank, and ordering a new trial, in this action on a promissory note given by the defendant to one Slocum, says that the latter was an itinerant doctor who advertised his business by a dog, pony and medicine show. On the day on which the note was given, Slocum told the defendant that his wife had catarrh, and that a cancer was forming in her stomach; that if the defendant did not do something for her within thirty days, she would be past doing anything with at all; that, if she was not treated in the right way, she would die within thirty days; and that she ought to go to a hospital; that he had an institute and hospital at Wichita, but that he could treat her at her home. He asked the defendant if he was little enough to let his wife lay and die for $120. He promised the defendant to keep the note for six months, and said to him that his wife would be well; that the medicine he would give would cure her; and that he could cure her in sixty days. Immediately after obtaining the note, he tried to sell it in Neodesha, and soon thereafter transferred it to the plaintiff. He had neither institute nor hospital in Wichita. The defense was that the note had been obtained by fraud and was without consideration, and that the plaintiff had purchased the note in bad faith and with knowledge of the fraud.

The defendant's first assignment of error was that the trial court erred in refusing to permit him to introduce in evidence certain chattel mortgages on Slocum's show outfit to secure the payment of certain debts then owing by Slocum to the plaintiff, and to secure any other indebtedness that might be incurred to the bank by Slocum. There were four of those mortgages. They were signed by Slocum and by his wife, who claimed to be the owner of the property. The mortgages should have been received in evidence to establish links in a chain of circumstances which would tend to show that Slocum had committed a fraud on the defendant, and that the bank had knowledge of that fraud and was not a holder of the note in good faith.

The defendant's second assignment of error was that the court erred in rejecting the depositions of four physicians of Wichita. The testimony disclosed in those depositions concerned the honesty and integrity of Slocum, and his reputation and ability as a physician. That evidence tended to establish another link in a chain of circumstances which might prove that Slocum was guilty of fraud in procuring the note, and should have been admitted for that purpose.

The trial court placed the burden of proof on the defendant, and, after his evidence had been introduced, sustained a demurrer thereto, and instructed the jury to return a verdict in favor of the plaintiff. But the evidence of what occurred when the note was given, together with the chattel mortgages and the testimony contained in the depositions, if the chattel mortgages had been admitted in evidence, would have been sufficient to compel the trial court to submit the cause to the jury for the purpose of determining whether Slocum had been guilty of fraud in obtaining the note; and a finding of the existence of fraud would have been sufficient to place on the plaintiff the burden of showing that it acquired the note in due course.

Society Proceedings

COMING MEETINGS

American Assn. of Electro-Therap. & Radiol., Philadelphia, Sept. 9-12.
Am. Assn. of Obstetricians and Gynecologists, Cincinnati, Sept. 15-17.
American Roentgen Ray Society, Saratoga Springs, Sept. 3-6.
Colorado Cong. of Ophth. and Oto-Laryn., Denver, August 4-5.
Medical Society of the Missouri Valley, Des Moines, Sept. 18-19.
Utah State Medical Association, Salt Lake City, Sept. 9-10.
Washington State Medical Association, Spokane, Sept. 11-13.
Wyoming State Medical Society, Thermopolis, Sept. 10-11.

AMERICAN PEDIATRIC SOCIETY

Thirty-First Annual Meeting, held in Atlantic City, N. J., June 16-18, 1919

(Concluded from page 220)

Cerebrospinal Involvement in Hereditary Syphilis

DR. C. P. JEANS, St. Louis: About 30 per cent. of syphilitic infants show changes in the cerebrospinal fluid of such a character and degree as to make the diagnosis of syphilitic involvement of the nervous system quite certain. There may or may not be associated clinical manifestations indicating neurosyphilis. Intravenous and intramuscular treatment will result in most instances in the disappearance of the abnormal findings, both in the cerebrospinal fluid and in the blood. Routine spinal puncture in older children having either latent or active syphilis likewise showed evidence of neurosyphilis in about 30 per cent. of those examined. Prolonged intravenous or intramuscular treatment will eventually result in a negative blood Wassermann reaction, while the cerebrospinal fluid may or may not continue to show changes indicating neurosyphilis. Intraspinal treatment will cause the disappearance of pathologic changes in the spinal fluid when these have persisted.

DISCUSSION

DR. W. MCKIMM MARRIOTT, St. Louis: Dr. Jeans' experience is that the administration of arsenic before mercury has been given may result in a serious reaction, namely, the Herxheimer reaction. In order to avoid this reaction, treatment should be given first with mercury and later with arsenic. A further practical application of the results of Dr. Jeans' work is that if one watches the spinal fluid in cases that are apparently cured, and after the blood has become negative, the spinal fluid may still be positive.

DR. L. R. DE BUYS, New Orleans: It is well to sound a warning against being too eager to exclude congenital syphilis in the presence of a negative blood Wassermann test. One should always examine the cerebrospinal fluid when syphilis is suspected. It is also well to get away from the intraspinal method of treating these cases.

DR. ISAAC ABT, Chicago: What is your manner of administering arsphenamin? I use both mercury and arsenic.

DR. C. P. JEANS, St. Louis: We use the arsenobenzol brand of arsphenamin. We also inject mercuric chlorid, one-half minim per kilogram, of a 1 per cent. solution.

Predominance of Seborrheic Eczema in Early Life

DR. THOMAS S. SOUTHWORTH, New York: The part played by seborrhea in the causation of eczema has been overlooked. The seborrheic factor may be traced in the milder forms on the face and body, the identity of which may be established by finding seborrhea on the scalp and in the characteristic locations in the folds above and below the ear. A seborrheic basis may furnish the starting point for an eczema. The recognition of a seborrheic basis for a lesion by no means excludes the possibility of other microcoecic invasion. There is no conflict between a seborrheic and an anaphylactic or toxic etiology of eczema, since seborrheic neighborhoods are susceptible to other superadded conditions of the skin. Zinc oxid ointment, so helpful in other types, is useless by itself in seborrheic cases, even of the simplest form, unless ammoniated mercury or tar or resorcin is added to destroy the micro-organisms present. The dietetic factor in these cases must be differentiated and corrected before these cases will yield to treatment.

Aneurysm of Ascending Arch of Aorta in a Thirteen Year Old Boy

DR. HENRY HERMAN, New York: Physical examination showed marked pulsation of the carotids, the heart enlarged, particularly to the left, rather a wide area of dulness at the level of the first and second interspaces, and a systolic murmur. The electrocardiogram showed a marked ventricular predominance. The fluoroscopic examination revealed an aneurysm of the ascending arch of the aorta. The roentgen ray corroborated this finding. The Wassermann test was ++++. The mother's Wassermann test was also ++++. In the epigastrium there was a hard mass, about 6 cm. in diameter, extending down about 8 cm. from the ensiform, not tender, and probably a gumma. The spleen was markedly enlarged, extending to the iliac crest. There were no palpable epitrochlear glands. The reason for presenting this case is the great rarity of aneurysm of the thoracic aorta in children, there being only about twenty cases of aneurysm of the aorta in children reported in the literature.

Congenital Disseminated Atelectasis

DR. JOHN RUHRÄH, Baltimore: When first seen, Nov. 15, 1917, the child, then between 4 and 5 months of age, showed cyanosis and rapid respiration, the respirations being rarely under 50 a minute and often 75 and 80. The heart was normal so far as could be ascertained. The roentgen ray revealed disseminated patches of unexpanded lung. The child, with proper care and attention to feeding, gradually improved, and at present is apparently normal.

Case of Scorbutic Hematuria

DR. PERCIVAL J. EATON, Pittsburgh: This case occurred in a rather poorly nourished child fed on patent foods and then on cooked foods, but never on fresh, raw food. The child's condition seemed to point more toward scurvy than toward calculus, and the urine showed nothing abnormal except bright red blood. Fresh raw milk, beef juice and orange juice were prescribed. Under this treatment the hematuria disappeared, and it was not necessary to use the sound.

Anomaly of the Diaphragm with Gastric and Intestinal Obstruction

DR. L. R. DEBUYS, New Orleans: This baby was perfectly well up to the age of 3 months, when she had a peculiar attack of colic with twisting and straining. After several attacks of this nature the child became acutely ill, with high temperature and rapid pulse. On examination the chest showed less movement of the left side and was apparently not as full as on the right side. Resiliency was absent. The heart was displaced to the right, the apex beat being in the median line. The abdomen presented a tumor in the epigastrium and left hypochondriac region, lying transversely, and about the roundness of a banana, 3 or 4 inches long, and distinct from the lower border of the ribs. The blood examination disclosed a leukocytosis of 29,500, with 88 per cent. polymorphonuclears. The roentgenogram suggested an intussusception. An operation, performed for the relief of the constriction, revealed a diaphragmatic hernia. The intestine was found empty and contracted. No omentum was visible. When the tumor was palpated there was a sudden gush of blood from the mouth and nose and a cessation of breathing. Attempts at resuscitation were futile. A further incision showed the spleen lying on top of the tumor with its long axis transverse to the abdomen and its convex surface lying next to the diaphragm, the lower end being just under the costal arch. The tumor was attached to the hilum of the liver. The transverse colon was not in sight. There was a hiatus in the diaphragm under the tumor which was found to be continuous with another fluid mass in the thorax. On opening the left chest, the fundus and greater part of the body of the stomach, the transverse colon and the great omentum were found in the thoracic cavity. No pleura was found over these viscera. The tumor consisted of the pyloric portion of the stomach twisted on its axis at the hiatus behind the diaphragm. At a second necropsy, the left suprarenal body was found to be enlarged and hemorrhagic. At the posterior left half of the diaphragm there was no attachment; a hard cord bridged over this area in a domelike manner. There was another twist in the stomach anterior

to the pyloric orifice. The two twists in the stomach had cut off certain blood supplies which resulted in gangrenous necrosis of the stomach wall. Among the points of interest in this case were the absence of tenesmus and bloody stools in an obstruction involving the descending colon, which would require the exclusion of the diagnosis of intussusception, and the roentgenogram without evidence of air in the thorax, especially with an intestinal hernia into it.

Incidence and Significance of Rheumatic Nodules in Children

DR. JOSEPH BRENNEMANN, Chicago: Rheumatic nodules are as frequent in children in this country as they are in England, where they have received so much attention. Observers should settle the question as to whether these nodules are a definite quantitative accompaniment of rheumatism or whether they have a selective geographic habitat. They practically never occur in rheumatism uncomplicated by endocarditis or pericarditis. They are relatively rare in mild cases of rheumatism or chorea with cardiac complications, but occur with great regularity and usually very abundantly in chronic or recurrent and active endocarditis, especially in those patients that for weeks or months sway between life and death, not alone because of broken compensation, but even more because of a smouldering uncontrollable infection that ever and anon lights up again. As rheumatic nodules are pathognomonic of rheumatism with carditis, they are often of considerable diagnostic value. A new and abundant crop has often an ominous significance in showing that a new and serious cardiac invasion has taken place. Rheumatic nodules, unless very carefully looked for, are likely to be overlooked. Careful search will reveal them more often than is commonly thought.

AMERICAN SURGICAL ASSOCIATION

Fortieth Annual Meeting, held at Atlantic City, N. J., June 16-18, 1919

(*Concluded from page 222*)

Thoracic Fistula and Chronic Empyema: Nondeforming Operation for Its Cure

DR. HOWARD LILIENTHAL, New York: Thoracoplastic collapsing operations for the cure of sinuses and pneumothorax following empyema are, as a rule, unjustifiable and unsurgical. Not only is there permanent thoracic asymmetry, but the affected lung is permanently deprived of much of its function. The method I use restores the lung almost to its normal capacity, while its danger is far less than that of the Schede, Estlander and Delorme operations. The operation consists in the approach through a long seventh interspace incision beginning behind the costal angle and extending almost or quite to the cartilage. From one to four ribs are divided upward or sometimes downward at the posterior angle of the wound, or very rarely upward at its anterior end in order to expose every recess of the cavity. A powerful automatic rib retractor is an absolute necessity in this operation. The lung, which will be found bound down by adhesions, is now liberated by incision through the confining membrane, which may be removed if there is an easily found line of cleavage and which otherwise may be loosened by numerous intersecting incisions. By intrapharyngeal insufflation the lung is expanded and it should reach the chest wall. Fine bubbling on the surface is of no consequence, but whistling means that a bronchus has been entered, an accident which should, if possible, be avoided. Drainage is secured through the original sinus enlarged for the purpose, the new surgical wound being closed by interrupted sutures of chromic catgut through the muscles, but without pericostal sutures. The skin wound is approximated by silk or silkworm-gut. The after-treatment consists in dressings, irrigations and strenuous blowing exercises.

Delayed or Late Extraction of Intrathoracic Projectiles by Method of Petit De La Villéon

DR. ROBERT G. LECONTE, Philadelphia: This method depends on the localization of the projectile with regard to its anatomic surroundings in contradistinction to its mathematical situation from surface markings. The projectile is removed by sight with forceps through a small buttonhole opening, with the employment of the roentgen rays and a fluoroscopic screen.

DISCUSSION

DR. ANTOINE DEPAGE (through Dr. Joseph Van de Velde): In a bad case of empyema after using the Carrel method and making a bacteriologic count, the wound became sterile. Then we simply closed the wound and the result was perfect. All cases treated in this way gave very good results. Before suturing, it is very important that the bacteriologic count should be satisfactory and that there should be no secretion in the wound. The edges of the wound should be freshened, the pleura and the skin then being sutured. In a large cavity the fluid will do no harm since it is absorbed gradually.

DR. ALEXIS V. MOSCHOWITZ, New York: The essential elements in the treatment of empyema are the sterilization of the cavity and the work Nature will do following this.

DR. WILLY MEYER, New York: The reference to the aid which Nature will give in the treatment of empyema recalls a case of a child, 10 months of age, in whom the formaldehyd glycerin injections were used. Much to my surprise the sinus closed; the roentgen ray revealed a pneumothorax, but at the end of two weeks the child was entirely well. I was called on some time ago to remove the bismuth oil which had been injected in an old empyema case to determine the extent of the cavity, and in which acute bismuth poisoning had resulted. We reopened the original resection of the rib. The man continued to have irregular temperature and we instituted the Carrel-Dakin treatment. After forty-eight hours he appeared to be in very good condition. The sinus is almost closed now. The old chronic cases of empyema offer a good field for the use of differential pressure.

DR. A. J. OCHSNER, Chicago: At the Philadelphia meeting of this association I reported a series of cases such as Dr. Lilienthal described, in which we used the bismuth paste, following exactly the directions given by Beck. We have continued the use of the method; and while I have not the figures, much more than half of our patients have recovered permanently. The bismuth paste, however, must be administered in strict accordance with the directions given.

DR. JOSEPH RANSOHOFF, Cincinnati: During the recent epidemic I had about eighty cases of empyema. All the patients recovered. Abscess of the lung occurs in about 6 per cent. of the acute empyemas. Drains in both directions give a connection between the pleural cavity which is infected and the base of the lung. We did not discover this in our cases until we began the use of surgical solution of chlorinated soda, when some of the solution was coughed up with rather unpleasant complications. While empyema cases may be closed with fluid present and remain closed for two or three years, so long as there is any fluid in the pleural cavity there is the possibility of the relighting up of the infection. I agree fully with the statement that in some of these chronic cases the mere sterilization is not sufficient treatment. We must make a resection to free the lung and allow it to expand.

DR. JOSEPH A. BLAKE, New York: I agree with Dr. Ransohoff that the best treatment of chronic sinuses following empyema is their prevention. I believe also that in too many cases too much drainage is used at the primary operation, and that the drainage tubes and the treatment are responsible for the formation of sinuses. I regard it as absolutely wrong to use the Carrel-Dakin treatment in the early stages of the case. We would not, for instance, think of using Carrel-Dakin solution in the peritoneum in peritonitis, or in suppuration of the knee joint, with the tubes and constant irrigation. It was my unfortunate experience to see in France a very large number of patients in whom the Carrel tube had been left for a long time with a resultant sinus. The operation must be done with judgment; in some cases there is much material to be removed. The drainage tube should be left in for thirty-six hours, and care must be observed that sufficient drainage is secured.

Fractures of Lower Third of Femur

DR. JOSEPH VAN DE VELDE, La Panne, Belgium: The compounding of these fractures during the war has considerably complicated the treatment. Open fractures by missiles we

divide into fractures: (1) with no comminution; (2) with slight comminution, and (3) with much comminution. For each of those types we used the following three methods of treatment: (1) wiring; (2) traction on the femoral condyles by ice tongs, Steinmann pins or Willems screws; (3) Depage's vertical suspension of lower fragment combined with horizontal traction on the leg. The first type of fracture is the ideal one for wiring. If, after débridement we plan to make a primary suture of the wound, we use Depage's wiring method because the metallic tube which sustains the wire comes out of the wound and affords good drainage. If we make a secondary suture, we use a Payham or bronze wire which we remove after a month before suturing the wound. In transverse fractures we use the ice tong or vertical suspension, and in a few cases we have used Lane's plates with good result. We do not recommend the use of screws in open contaminated fractures. In the second type of fracture primary suture is dangerous, and we therefore make a delayed primary of a secondary suture, and here the Steinmann pin offers the best method. It is placed just above the condyle. When this is not possible we pass it through the anterior part of the condyle under the control of a fluoroscopic screen, as recommended by Fesson. The pin should not be left in place more than six weeks. For the third type of fracture we use the vertical suspension, which is combined with a horizontal traction on the leg. The vertical suspension is accomplished by passing a bronze wire through all the tissues of the anterior part of the thigh with a Reverdin needle. A finger introduced into the wound catches the wire and fixes it securely around the end of the lower fragment. Traction is made by a weight hanging above the bed of the patient. Shortening of the femur is prevented by traction with a Chutro stirrup. Some of our fractured femurs were kept for three months with this apparatus without pain or complication. The method has been used with excellent result also in cases of badly united fracture of the lower third with fistula. Here we recommend the subperiosteal resection of the osteitic callus and a vertical suspension of the lower fragment. Those cases have done wonderfully well.

DISCUSSION

Mr. W. Hey Groves, London, England: In general terms I am quite in accord with Dr. Van de Velde's principles of treatment; but in certain details I think the matter is open for criticism. In fractures with no comminution I think the number requiring wiring is quite the exception, and that the operation should be limited to those cases in which the widely separated fragments show a real danger of the soft parts intervening. Even here, with the efficient extension apparatus which we have the cases are few. On the treatment of the second type of fractures I think we are in agreement. However, a pin right through the lower end of the thigh is bound to act as a seton, and in a small definite proportion of cases there will be sepsis, which in my own experience amounts to 3 per cent. This danger is entirely eliminated by the use of tibial transfixion. Dr. Van de Velde admitted that the ice tongs or Steinmann pins should not be left in place longer than six weeks, but my experience is that six weeks do not see us through. I venture to suggest, therefore, that in a great many cases it is of the greatest possible value to transfix the tibia and to put on a weight extension.

Dr. A. Primrose, Toronto, Canada: It is possible to close a gap in the skull by a graft of bone or cartilage. The operation is attended by little danger to life. The relief of symptoms directly dependent on the existence of the gap is, as a rule, immediate and complete, such as headache, dizziness, the fear of injury and sense of insecurity, mental depression and worry because of the possession of an ugly deformity. The value of the operation in jacksonian epilepsy is less evident except so far as one may succeed, by removing cortical irritation, in ameliorating the attacks. Symptoms dependent on organic cerebral lesions, such as defective vision, aphasia, loss of memory, deafness and loss of smell, are not improved by the operation. A fascial graft is of distinct value when a bone or cartilage graft is not borne. Finally, the conclusion is reached that when a cranial gap exists it should be closed. The symptoms caused by the existence of the gap will be relieved by a successful cranioplasty.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

July 19, 1919, 158, No. 568

Management of Postpneumonic Empyema. W. J. Stone, Toledo.—p. 2.
*Scleroderma and Sclerodactyly: Case and Review of Literature. R. M. Atwater, Boston.—p. 29.
*Neurocirculatory Asthenia. J. H. Carrol, U. S. Army.—p. 35.
*Relation of Bacillus Influenza to Recent Epidemic. G. McDonnel, U. S. Army.—p. 47.
Bacillus Botulinus Poisoning. Report of Seven Cases; Four Fatal. G. W. McCaskey, Fort Wayne, Ind.—p. 57.
Review of Epidemic of Influenza at Base Hospital, Camp Beauregard, La. D. J. Frick, U. S. Army.—p. 68.
Bacteriologic Observations on Epidemic of Influenza at Camp Beauregard, La. J. E. McClelland, Cleveland.—p. 80.
Treatment of Epithelioma by Radium. R. H. Boggs, Pittsburgh.—p. 87.
Cerebral Hemorrhage of New-Born. M. Warwick, Minneapolis.—p. 95.
Pneumohydrothorax. J. I. Johnston, Pittsburgh.—p. 105.

Scleroderma and Sclerodactyly.—This case presented by Atwater possesses many characteristics of the disease in its usual form. The associated sclerodactyly appears quite typical of those cases previously reported in which roentgenographic studies of the bones have been made. There is a characteristic atrophy, absorption and eventual disappearance of the terminal phalanges most commonly in the hands and sometimes in the feet.

Neurocirculatory Asthenia.—In Carrol's opinion some types of hyperthyroidism are analogous to neurocirculatory asthenia, and their pathogenesis is probably identical, the phenomena being attributable to a hyperexcitability of the opposing set of fibers of the autonomic nervous system. In both conditions the syndrome develops in individuals in whom there is a hyperirritability of one or other sets of fibers in the autonomic system. Hence, constitutional predisposition due to inherited sympathetic or vagotonic instability is a factor in the causation on a sound basis. Nervous and emotional strain is the immediate cause of susceptibility (acquired instability of the autonomic nervous system); infection plays a predominant rôle and the susceptibility in such cases may be accepted as indicating a chronicity of the infection with constant or frequent outpourings into the blood of the infective agent. There is a certain rationale for believing that this instability in the autonomic nervous system lies in the element of anaphylaxis in disease in the predilection of anaphylatoxin for the parasympathetic system. There is some evidence that deficiencies of calcium in the diet may have played a part in the causation of some of the phenomena and that the higher plane of inorganic metabolism in the organism may have shared with epinephrin increase the responsibility in causation of the thyroid hyperplasia and hyperthyroidism among the soldiers.

Relation of Bacillus Influenzae to Recent Epidemic.—The final conclusion reached by McDonnel is that the evidence at hand is not in favor of the influenza bacillus being considered the etiologic factor in the recent epidemic.

Annals of Otology, Rhinology and Laryngology, St Louis

March, 1919, 28, No. 1

Mastoid Cases. C. R. Holmes, Camp Sheridan, O.—p. 1.
Studies of Ear as Motion-Sensing Organ. E. R. Lewis, Dubuque, Ia.—p. 10.
Case of Spontaneous Hemorrhage from Lateral Sinus Occurring Six Days After Simple Mastoid Operation. F. T. Hill, Fort Oglethorpe, Ga.—p. 29.
Complications and Sequels of Tonsil and Adenoid Operations. H. L. Baum, Denver.—p. 37.
Acute Affection of Middle Ear and Mastoids Following Measles. T. J. Jarris, Ft. Oglethorpe, Ga.—p. 59.
Errors and Failures in Bronchial and Esophageal Endoscopy. E. M. Holmes, Boston.—p. 65.
Accidents Result of Submucous Resection of Nasal Sepfum. C. G. Stivers, U. S. A.—p. 69.
Unusual Cases Met With in Ear, Nose and Throat Service in Base Hospital. S. S. Burns, St. Louis.—p. 73.
Importance of More Intimate Cooperation Between Various Specialists Who See Neurosurgical Cases. E. Sachs, St. Louis.—p. 76.

Case of Toxic Delirium Following Mastoidectomy. J. A. Robinson, New York.—p. 86.
Case of Brain Abscess. I. Friesner, New York.p. 90.
Case of Temporosphenoidal Abscess of Right Lobe. H. Blackwell, New York.—p. 92.

Annals of Surgery, New York

June, 1919, 69, No. 6

Influence of War Surgery on Civil Practice. L. S. Pilcher, Brooklyn.—p. 565.
Treatment of War Wounds. A. DePage, Brussels, Belgium.—p. 575.
Treatment of Burns. Report of 32 Cases. A. M. Fauntleroy and A. W. Heagland, U. S. Navy.—p. 589.
*Myxoma. W. H. Fisher, Toledo, Ohio.—p. 596.
*Fibroma of Internal Oblique and Transversalis Muscles. N. W. Green, New York.—p. 600.
*Umbilical Teratoma; Containing Pancreas and Intestine. B. Brooks, St. Louis.—p. 603.
*Case of Defecation, Urination and Menstruation by Rectum. W. W. Keen, Philadelphia.—p. 606.
*Vaginal Hernia. H. B. Sweetser, Minneapolis.—p. 609.
*Why is End-to-End Intestinal Anastomosis Unsafe? A. L. Soresi, New York.—p. 613.
Deformity of Scapula Associated with Cervical Rib and Spina Bifida. G. H. Gopher, St. Louis.—p. 644.

Myxoma of Labium.—Fisher reports a case of pure myxoma of the right labium majus. The tumor never caused any pain and was insensitive to manipulation or pressure. It encroached on the pubic bone and infiltrated the surrounding soft tissues. The tumor weighed 7 pounds.

Fibroma of Abdominal Muscles.—This tumor was found growing in the fibers of the internal oblique and transversalis muscles. The external oblique was not adherent to it. The tumor seemed to be growing from the crest of the iliac bone.

Umbilical Teratoma.—The case cited by Brooks in which an isolated miniature intestinal apparatus was found at the unbilicus undoubtedly is an instance in which the omphalomesenteric duct failed to disappear entirely. The patient was a healthy child, 2 years of age, with no abnormalities, except those referable to the umbilicus. The unbilicus was replaced by an ulcer. The superior margin of the ulcer was overhanging. The lateral margins were sloping. Under the overhanging superior margin of the ulcer was a small sinus into which a probe could be passed for a distance of 3 cm. No chemical examination of the fluid was made. At operation on the peritoneal surface of the umbilical region was found a spherical tumor. There was no visible connection of this tumor with any other structure. On section the similarity of the tumor to tissue of the gastro-intestinal tract was revealed. Microscopic examination showed the spherical tumor to be composed of tissues corresponding to those forming normal intestine. Peritoneum, muscle, nerve cells, submucosa, lymphoid nodules and mucosa were all present in their usual relations. In the wall of the tumor adjacent to the peritoneum was a small island of normal pancreas. The gland was lobulated. The arrangement of the acini and ducts was the same as that of the normal pancreas.

Defecation, Urination and Menstruation by Rectum.—Keen cites the case of a woman, who for over thirty-five years defecated and urinated and for eleven years menstruated by the rectum. The condition necessitating this use of the rectum was a case of extensive and incurable vesicovaginal and rectovaginal fistula caused by sloughing as a complication of typhoid. Ultimately Keen entirely closed the vaginal outlet.

Vaginal Hernia.—Sweetser cites a case of hernia protruding through the posterior vaginal wall. It was covered by peritoneum. The omentum was firmly attached to the uterus and broad ligaments. When the omentum was detached, the coils of bowel were separated and the uterus drawn forward, an opening was discovered in the center of the Douglas pouch, about 1 inch in diameter, through which the finger could be passed into the cyst below. There was no cyst wall above. The opening was closed by sutures, including the sacro-uterine ligaments. The abdomen was closed without drain. Returning to the vagina the sac was twisted into a cord, tied and cut off, and the levator muscles were sutured over the stump. The redundant vaginal wall was excised and the edges sutured.

End-to-End Intestinal Anastomosis.—This is a report of a clinical and experimental study of technic, indication and contraindications for end-to-end anastomosis of the small intestine and the colon. Soresi claims that, technically speaking, it is impossible with any method and the most perfect technic imaginable, to perform an end-to-end intestinal anastomosis, either of the small intestine or of the colon, with the positive certainty that leakage will not take place. The tissues found in the mesenteric space are infected and their blood supply is practically nil. In order to make it as safe as possible, whatever can lessen the resistance of the tissues concerned in the anastomosis must be avoided, such as unnecessary trauma, blood clots, great amount of suture material, unnecessary infection, knots, tight sutures; the blood supply must be left in the best condition obtainable with a safe and perfect hemostasis; all these desiderata are obtained with a technic originated and recommended by Soresi. He states further that the end-to-end method should always be resorted to in preference to any other method requiring more time when, and only when, time is the most important factor that will help to save a patient's life.

Archives of Internal Medicine, Chicago

June 23, No. 6.

Influenza Epidemic of 1918 in France and England. W. J. McNeal, New York.—p. 657.
*Rapid Construction of Liver Cell Protein on a Strict Carbohydrate Diet Contrasted with Fasting. N. C. Davis, C. C. Hall, and G. H. Whipple, San Francisco.—p. 689.
Influenza Epidemic of Liver Cell Protein on a Strict Carbohydrate Diet Contrasted with Fasting. N. C. Davis, C. C. Hall, and G. H. Whipple, San Francisco.—p. 689.
Liver Regeneration following Chloroform Injury as Influenced by Various Diets. N. C. Davis and G. H. Whipple, San Francisco.—p. 711.
*Nonepidemic "Epidemic" Meningitis. G. H. Bigelow, Boston.—p. 723.
*Cerebral Complications of Mumps. R. L. Haden, Detroit.—p. 737.
*Oxygen Consumption of Human Erythrocytes. G. A. Harrop, Baltimore.—p. 745.
Physiology and Experimental Treatment of Poisoning with Lethal War Gases. E. P. Underhill, New Haven, Conn.—p. 753.

Construction of Liver Cell Protein by Carbohydrates.—Davis and his associates have been impressed with the great speed of repair of the normal liver following a type necrosis due to chloroform. A diet of bread and skim milk gives the optimum repair following a unit chloroform liver necrosis. A diet of cooked skeletal muscle is not as favorable for rapid liver repair as the rich carbohydrate diet. A diet of cooked liver or kidney is more favorable for rapid liver repair than a meat diet. Beef extract given alone does not favor liver repair, which indicates that meat extractives are not particularly concerned in the reaction of liver repair. Thyroid powder given in large doses with no food does not stimulate liver repair, but does accelerate tissue katabolism and increase nitrogen elimination. Brain feeding is favorable to liver regeneration and repair. Fat diets (vegetable oils, butter, lard, beef, fat, etc.) do not aid in liver regeneration.

Nonepidemic "Epidemic" Meningitis.—Eighteen cases of meningococcus meningitis in which the infection was probably conveyed by a carrier are analyzed by Bigelow. In this series, eight of the patients received a serum, the titer of which was 1:200, or higher, for the organism recovered in each case. Each of these patients received an average of 278 c.c. of serum intraspinally and 191 c.c. intravenously. Five of the eight patients died, a mortality of 62.5 per cent. The mortality among the other ten cases was 70 per cent. Of these ten, the titer used in the serum, in one half of the cases was less than 1:200, and in the other half it was not determined. Five, or 27.6 per cent., of the patients showed purpura. Only one of these recovered.

Cerebral Complications of Mumps.—Nine cases of cerebral complications occurring among 476 cases of mumps are recorded by Haden, who believes that cerebral complication is probably mainly an encephalitis instead of a meningitis. Gram-positive cocci were demonstrated in the spinal fluid in one case. Animal inoculation and culture were negative. Lumbar puncture was a most effectual therapeutic measure.

Oxygen Consumption of Human Erythrocytes.—According to Harrop normal mature human erythrocytes have no oxygen

consumption measurable by present methods. Where it is measurably increased in the blood of individuals with anemia, the oxygen consumption has no relation to the severity of the anemia and no constant relation to histologic abnormalities in the erythrocytes other than increases in the number of reticulated cells. Blood which contains abnormal numbers of reticulated erythrocytes has an oxygen consumption proportional to the percentage of reticulated cells present. The data afford evidence that the two phenomena go hand in hand. Both are due to the presence of abnormal numbers of youthful cells, and both are probably rather accurate indicators of functional variations in the bone marrow and of the amount of blood regeneration.

Archives of Neurology and Psychiatry, Chicago

June 1, 1919, 1, No. 6

*Pathology of Experimental Traumatic Abscess of Brain. C. R. Essick, Reading, Va.—p. 673.
*Histopathology of Carcinoma of Cerebral Meninges. G. B. Hassin, Chicago.—p. 705.
Case of Mongolism in One of Twins. H. Swanberg and H. A. Haynes, Lapeer, Mich.—p. 717.
*Eunuchoidism. H. Climenko and I. Strauss, New York.—p. 726.
*Pathogenesis of Tabes Dorsalis. W. F. Schaller, San Francisco. —p. 749.
Surgical Treatment of Injuries of Nervous System. C. A. Ehlberg, New York.—p. 768.

Traumatic Abscess of Brain.—Experimental abscesses produced in the cortex of thirty-five cats by injury and infection of the brain resulted in a rapidly fatal process which simulated the traumatic injuries of the central nervous system in man. The affected part enlarged and brought about a marked dislocation and compression of the remainder of the nervous tissues. In 50 per cent. of the cases the infection reached the ventricular system within a few days, and from there usually spread into a basilar meningitis through the metapores of the fourth ventricle. The tendency of the infective process to invade the subarachnoid space from the point of injury was not marked, but in a third of the animals the infection entered the subdural space, forming there a subdural abscess. These lesions were very different from the more slowly growing abscesses extending from the air sinuses. The latter, occurring frequently in man, may be differentiated by the relatively slight swelling and dislocation, and by the development of a definite connective tissue capsule between the lesion and the sound parenchyma. The traumatic abscess in the experimental animal extended rapidly along the fiber tracts. No encapsulation could be demonstrated in any of these observations. Healing took place by ingrowth of connective tissue.

Carcinoma of Cerebral Meninges.—The reactive phenomena in the meninges to the presence of cancer cells, and the character of the meningeal involvement were studied by Hassin in one case which is reported in detail.

Eunuchoidism.—Four cases of congenital eunuchoidism, three of which, can easily be put into the class of status lymphaticus are reported by Climenko and Strauss. The first case gave clinical symptoms of apoplexy into the cord, a condition hitherto unreported, although apoplexies into the brain have been known to exist. The third case shows a sella condition that is also very rare and is contrary to the belief that in the eunuchoids the sella turcica is enlarged. It probably illustrates the fact that our judgment of the function of the pituitary must not be based on the size of the sella as evidenced through the roentgen-ray appearance. The fourth case is a mixed type of eunuchoidism with characteristic fat accumulations and strongly suggestive of status lymphaticus. In this case also the sella turcica was rather small. The second case is in a class by itself. The patient resembles the anthropoid much more than does the average human being. His skeletal frame looks as if it belonged to an intermediary stage between the human and the anthropoid. His intelligence is low.

Pathogenesis of Tabes Dorsalis.—Schaller is an adherent to the meningeal theory of tabes in the sense that the meningeal inflammation occasions in some manner the characteristic degenerations of the posterior roots and the posterior columns of the cord. Subacute syphilitic inflammatory changes in the subarachnoid space (posterior leptomeningitis, meningeal and neural involvement of radicular nerve) are in etiologic relationship with the degeneration of the posterior roots. Likewise similar processes explain the cranial nerve involvement in tabes. The manner in which this subacute inflammatory meningitis produces root degeneration is as yet uncertain. It may act by direct extension of the meningeal lesions to the nerve roots causing a meningoradicultis, or by pressure constiction from sclerosed meninges; by toxic products engendered by this inflammation or even by increase of fluid pressure, as is the case in posterior spinal root degeneration in brain tumor. These causes may act together or independently. This inflammation, which is constant in tabes to a greater or lesser degree, is evidenced by characteristic cerebrospinal fluid changes at one time or another in every case of tabes. Specific therapy in tabes should have for its object the reappearance of normal fluid reactions. Intraspinal therapy may be necessary to obtain this object. Conversely intraspinal treatment is contraindicated when the fluid shows no inflammatory reactions.

Arkansas Medical Society Journal, Little Rock

June, 1919, 16, No. 1

Proceedings of Annual Meeting.

Boston Medical and Surgical Journal

July 10, 1919, 181, No. 2

Medicine from Lay Standpoint. Molière; Shaw; Kipling. T. Leary. Boston.—p. 27.
Compulsory Reporting and Compulsory Treating of Venereal Diseases. B. H. Mason, Worcester, Mass.—p. 34.
Treatment of Round Shoulders. E. H. Bradford, Boston.—p. 39.
Alcohol as Factor in Production of Epilepsy and Allied Convulsive Disorders. D. A. Thom, Palmer, Mass.—p. 42.

Georgia Medical Association Journal, Atlanta

May, 1919, 9, No. 1

Proceedings of Annual Meeting.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

May, 1919, 13, No. 2

*Optical Isomers. V. The Tropeins. A. R. Cushny, Edinburgh.—p. 71.
*Action of Drugs on Output of Epinephrin from Suprarenals. I. Strychnin. G. N. Stewart and J. M. Rogoff.—p. 95.

Tropein.—According to Cushny, while tropein itself is devoid of the typical atropin action, many of its compounds, especially those containing the benzene nucleus, possess the characteristic action in some degree. This is greatly intensified by the presence of hydroxyl and asymmetric carbon in the side chain, and the highest degree of activity is reached only when tropein is combined with an acid of the benzene series, which contains a hydroxyl and an asymmetric carbon in the side chain, the whole molecule being levorotary.

Action of Strychnin on Output of Epinephrin from Suprarenals.—The authors found that strychnin causes a marked increase in the output of epinephrin. The increase is not transient but persists for a considerable time. No attempt was made to fix a minimum effective dose, but it was clearly shown that doses of strychnin well within the therapeutic range, and which caused little or no exaggeration of reflex excitability are capable of producing a considerable augmentation in the rate of output. Indications were obtained in some experiments that the stage of prolonged augmentation of the rate of output, which constitutes the principal action of the drug, may be preceded by a transient diminution. This phenomenon was best seen with the smaller doses and with subcutaneous administration of the drug.

Kentucky Medical Journal, Bowling Green

July, 1919, 17, No. 7

Relation of Thyroid to Confusional Insanity and Melancholia. J. S. Wright, Louisville, Ky.—p. 271.
U. S. P. H. Service and Influenza. J. McMullen, U. S. P. H. Service. —p. 275.
Red Cross and Influenza. L. Hafford, Louisville.—p. 277.
Influenza Epidemic; Its Lessons. J. I. Wittenberg, Louisville.—p. 280.
Tracheotomy for Edema of Larynx Complicating Influenza. E. D. Smith, Louisville.—p. 282.

Cranial Fracture: Subtemporal Route Preferred in Increasing Intracranial Pressure. L. Bloch, Louisville.—p. 283.
*Traumatic Rupture of Intestine; Case Report. C. G. Forsee, Louisville.—p. 284.
Venereal Clinic. H. Bronner, Louisville.—p. 285.
Results of Roentgen-Ray Therapy in Treatment of Nonmalignant Uterine Hemorrhage. J. P. Keith.—p. 288.
Dorsolumbar Myelitis; Case Report. A. W. Nickell, Louisville.—p. 290.
National Administration of Food and Drug Laws. H. W. Wiley, Washington.—p. 292.

Traumatic Rupture of Intestine.—A young man, 19 years of age, was struck by an automobile while riding on the tail board of another automobile. The accident occurred about two hours after the young man had eaten a full meal. There was complete division or rupture of the small intestine, 4 to 6 inches below where the duodenum crosses the vertebrae. This tear extended about 3½ inches into the mesentery. There was very little soiling of the peritoneum as the mucous membrane protruded through an opening and stopped the emptying of the intestinal contents into the cavity. The peritoneum was torn off the inner surface of the colon over a space of 2½ inches by 3½ inches. This was sutured in place. The intestine was closed by an end-to-side anastomosis. The patient recovered.

Medical Record, New York

July 5, 1919, 96, No. 1

Situation Psychosis. J. E. Long, Washington.—p. 1.
Does Cure of Cancer Depend on Oxidation of Tissues? E. P. Robinson, New York.—p. 9.
Treatment of Pneumonia. L. Kirby, Nottingham, Eng.—p. 12.
Intravenous Use of Iron and Arsenic. L. Stern, New York.—p. 14.
Wounds of Head in War. E. Archibald, Montreal.—p. 16.

July 12, 1919, 96, No. 2

Carcinoma of Gallbladder. J. B. Deaver, Philadelphia.—p. 47.
Through the Jaws of Death, Back from the Mouth of Hell. W. B. Knokle, Montoursville, Pa.—p. 49.
Intelligence. B. Lemchen, Chicago.—p. 50.
Evolution of Podiatry. H. Scheimberg, Brooklyn.—p. 53.
Ambulatory Skull Fracture with Delayed Symptoms. K. A. Menninger, Topeka, Kan.—p. 58.
Two Unusual Cases of Alcoholism. L. F. Herz, New York.—p. 58.
Venereal Problems of the War. V. C. Pedersen, New York.—p. 60.

Michigan State Medical Society Journal, Grand Rapids

July, 1919, 18, No. 7

*Deformities of Plantar and Anterior Arch. B. Monkman, Detroit.—p. 371.
Corpus Luteum Extract in Pregnancy. W. E. Welz, Detroit.—p. 373.
Scopolamin Morphin Anesthesia and Analgesia. B. Van Hoosen, Chicago.—p. 375.
Advantages of Routine Rectal Examination During Labor. L. L. Bottsford, Ann Arbor, Mich.—p. 378.
Diagnosis of Peptic Ulcer. J. B. Jackson, Kalamazoo, Mich.—p. 382.
Significance of Focal Infections. C. D. Aaron, Detroit.—p. 350.

Deformities of Plantar and Anterior Arch.—Monkman says that the attitude of the medical profession should change from one of passive to active interest in advocating reform in the manufacture and sale of shoes. Freak styles in shoes should be subjected to a prohibitive tax to discourage their manufacture, preferably by federal enactment. The fitting of shoes should be supervised by a real orthopedist. Appliances for the feet should only be sold on the advice of the physician as is any other corrective measure.

Nebraska State Medical Journal, Norfolk

June, 1919, 4, No. 6

Proceedings of Annual Meeting.

New York Medical Journal, New York

July 5, 1919, 60, No. 1

Curvatures of Spine in Growing Children. E. H. Bradford, Boston.—p. 1.
Important Needs of Hospitals for Mental Diseases. E. J. Kempf, Washington.—p. 8.
Importance of Early Detection of Glaucoma and Its Management. J. A. Kearney, New York.—p. 11.
Shell Shock in Soldiers. I. Bram, Philadelphia.—p. 13.
Epidemic Polioencephalitis (Lethargic Encephalitis). I. Abrahamson, New York.—p. 17.
Apothesine Anesthesia in Tonsillectomy. J. Coleman, New York.—p. 19.
*Effects of Influenza on Pulmonary Tuberculosis. B. Stivelman, Bedford Hills, N. Y.—p. 20.

Effects of Influenza on Pulmonary Tuberculosis.—Careful observation for four months, and reexamination of all patients affected with tuberculosis at the end of this period, showed that all the patients but two were none the worse for their experience, their general condition being as good as might have been expected normally. Tuberculous and nontuberculous subjects seemed to have been equally susceptible to influenza, the incidence in each case being 24 per cent. Early and advanced cases were equally affected. Pneumonic consolidations occurred as frequently in the nontuberculous as in the tuberculous.

July 12, 1919, 60, No. 2

Origin of Immunity. C. L. Redfield, Chicago.—p. 45.
Belgian Medical Service. L. Melis, Brussels, Belgium.—p. 48.
Clinical Value of Serologic Examinations. J. G. Hopkins, New York.—p. 49.
*Suprapubic Prostatectomy. A. L. Soresi, New York.—p. 51.
Education of the Young Blind. E. M. Van Cleve, New York.—p. 54.
Rhinoplastic Surgery. C. Graef, New York.—p. 56.
Interesting Cases in Post Hospital in Brooklyn. C. C. Leck, Brooklyn.—p. 59.
Intestinal Parasites. I. V. Levi, Philadelphia.—p. 63.

Suprapubic Prostatectomy.—A new technic for a modified two and three stage operation, and absolute prevention of secondary hemorrhage is described by Soresi. This modification aims to prevent the infection of the tissues surrounding the bladder. The first stage consists in suturing the unopened bladder to the skin under local anesthesia; the second stage is also the last if the surgeon deems it convenient to remove the prostate immediately. To prevent hemorrhage, Soresi puts in the place from which the prostate, or part of it, was removed, a soft rubber bag, which is then filled with mercury. The pressure exercised by the heavy mercury is continuous, uniform, gentle and sufficient to compress the torn blood vessels.

Tennessee State Medical Association Journal, Nashville

June, 1919, 12, No. 2

Plea for Better Rural Sanitation; Preventive Measures. J. T. Moore, Algood, Tenn.—p. 41.
Rural Health Work in Tennessee. E. L. Bishop, Nashville.—p. 42.
Labyrinthitis Accompanying Acute Purulent Otitis Media. J. B. Blue, Memphis.—p. 48.
Flagellate Diarrhea. J. Witherspoon, Nashville.—p. 50.
Extrauterine Pregnancy. J. H. Carter, Nashville.—p. 54.
*Unusual Mastoid Case. W. L. Simpson, Memphis.—p. 56.
Vomiting as Symptom in Cerebral Disorder. B. F. Turner, Memphis.—p. 57.
Importance of Arousing Among General Practitioners a More Intense Interest in Diseases of Mouth, Especially Pyorrhea. J. R. Carrol, Henderson, Tenn.—p. 58.
Surgery of Some Common Orthopedic Conditions. R. O. Ritter, Chicago.—p. 60.

Unusual Mastoid Case.—In the case cited by Simpson extensive pathologic changes in the mastoid were accompanied by few physical signs and symptoms and few abnormal findings in the ear. The drum and hearing were normal.

Texas State Journal of Medicine, Fort Worth

June, 1919, 15, No. 2

Quotations on History of Medicine. S. P. Price, Marlin, Texas.—p. 39.
Part of Texas Doctors in War. T. T. Jackson, San Antonio, Texas.—p. 45.
Public Health Progress in Oklahoma. A. R. Lewis, Oklahoma City.—p. 52.
Needs of State Health Department. C. W. Goddard, Austin, Texas.—p. 49.

Virginia Medical Monthly, Richmond

May, 1919, 46, No. 2

Congenital Pyloric Stenosis. L. W. Peple, Richmond.—p. 25.
Present Status of Cesarean Section. B. H. Gray, Richmond.—p. 29.
Immediate Perineal Repair. V. Harrison, Richmond.—p. 33.
Diet During Puerperium. M. P. Rucker, Richmond.—p. 35.
Case of Gangrenous Balanitis. C. F. Ross, Richmond.—p. 36.
Treatment of Fractures of Elbow. P. W. Boyd, Winchester, Va.—p. 37.
Causes of Insanity. J. T. A. Wright, G. M. McCracken, Pittsburgh.—p. 39.
Cooperative Medicine. H. H. Roberts, White Sulphur Springs, W. Va.—p. 40.
Treatment of Nonmalignant Laryngeal Vegetations by Roentgen Rays. A. L. Gray, Richmond.—p. 41.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal

May 10, 1919, I, No. 3045

Jaundice: Types Occurring During the War. W. H. Willcox.—p. 565.
*Conductive Anesthesia By Intrasacral Extradural Injection of Procain. S. A. Meaker.—p. 569.
Treatment of Gonorrhea with Acriflavine. D. Watson.—p. 571.
Value of Bipp in Primary Operations for Gunshot Wounds of Joints. F. H. Diggle.—p. 572.
Cerebrospinal Fever. H. Rolleston.—p. 575.

Conductive Anesthesia by Intrasacral Extradural Injection of Procain.—The method described by Meaker is said to be a new one. When procain is injected extradurally into the bony canal of the sacrum, anesthesia of the third and lower sacral and coccygeal nerves is produced. The motor roots are not affected, and retention of urine after hemorrhoid operations done with sacral injections is neither more nor less common than when a general anesthetic is given. The regions supplied by the first and second posterior sacral nerves may undergo a paresthesia, but they are not anesthetized. The field of usefulness for sacral anesthesia is said to comprise operations for hemorrhoids, fistula and other conditions in and about the anus. In some cases the anesthesia is limited to a circle around the anus 3 or 4 inches in radius, while in others almost the whole of the buttocks may be analgesic. There is usually bilateral symmetry of effect. The lower rectum is anesthetized for at least 3 inches above the anus. The injection is to be made through the approximate center of the sacral hiatus.

China Medical Journal, Shanghai

May, 1919, 33, No. 3

*Pandemic Influenza in Korea; Etiology. F. W. Schofield and H. C. Cynn.—p. 203.
Relapsing Fever in Fukiem. J. E. Skinner, C. G. Trimble, and C. G. Chen.—p. 210.
*Intravenous Injections of Typhoid Vaccine in Treatment of Various Diseases. W. W. Cadbury.—p. 213.
*Tokelau (Tinea Imbricata) in Szechwan. H. J. Dubreuil.—p. 223.
*Significance of Charcot-Leyden Crystals in Indication of Amebic Colitis. H. W. Acton.—p. 229.
Neuritis of Ulnar Nerve Due to Adherent Cicatrix; Liberation and Elongation. L. Casabianca.—p. 233.
Implantation of Ureters into Rectum. A. L. Ludlow.—p. 236.
Vulvar Stenosis: Abnormal Dilation of Urethra. W. C. Dale.—p. 239.
Case of Hematocolpos. J. H. Baldwin.—p. 240.
Needs and Problems of Small Hospitals in China. J. P. Maxwell.—p. 241.

Pandemic Influenza in Korea.—Schofield and Cynn believe that it is doubtful whether Pfeiffer's bacillus can be considered as the specific cause of the recent pandemic of influenza.

Injections of Typhoid Vaccine in Various Diseases.—Commercial typhoid vaccine, or typhoid paratyphoid vaccine, prepared for prophylactic inoculations, was used by Cadbury with good results in acute arthritis, rheumatic fever, chronic arthritis, syphilitic affections, various forms of neuralgic pain, psoriasis, lichen planus, itching of eczema and erythema induratum.

Tokelau (Tinea Imbricata) in Szechwan.—In the treatment of this disease Dubreuil used chrysophanic acid ointment, 10 per cent., mixed with petrolatum. At the end of two applications, given at an interval of about four days, the scales drop off, leaving only a fine red tracery showing where they had been. At the end of another week even these marks completely disappear and the skin resumes the normal healthy aspect. The achromia persists, however, for some time, and it is easy to distinguish the parts which were affected from the rest of the skin. If the treatment is stopped at this point the lesions reappear where they were before, except that on the back they are much more rare and scattered. If at this stage treatment is recontinued, the scars at once yield, but only to reappear directly treatment is abandoned. To avoid these recrudescences, Dubreuil advises that the treatment should be conducted as follows: On the first day the patient anoints with the chrysophanic acid ointment only one part of the body, as the legs, making use of a brush in order to work the application thoroughly into the skin, and taking great care not to allow any of the portion of the skin of that part, no matter how small, to remain untreated. On the two following days, if there has been no symptom of drug intoxication, the ointment is applied to the trunk of the body and to the neck. Finally, the face is treated, and care must be taken to wash the patient carefully and to remove the ointment by gentle rubbing with alcohol if there are signs of conjunctivitis. If this should happen the treatment can still be continued, but use must be made of chrysophanic acid, 10 gm.; guttapercha, 10 gm.; chloroform, 80 gm. With intermissions of one or two days, if necessary, the treatment is started again, and gone through twice completely in exactly the same manner. From then onward, that is to say, at the end of about ten or fifteen days, nothing further need be done, except to apply the ointment daily on the hands and feet, special care being taken concerning the portions of the skin immediately adjoining the nails. If no lesions appear during two weeks of careful scrutiny, all treatment may be stopped and the patient kept under careful surveillance for a period of from fifteen days to a month, after which he may be considered cured.

Charcot-Leyden Crystals in Diagnosis of Amebic Colitis.—Acton's examinations of cases have shown that there is no association between Charcot-Leyden crystals and intestinal entozoa. Charcot-Leyden crystals are more commonly present in the subacute and chronic types of amebiasis than in the acute type. They are rarely found in the nonamebic dysenteries. The association between Charcot-Leyden and *Endamoeba dysenterica* is very high. The pressure of Charcot-Leyden crystals in the absence of amebas is indicative of amebic colitis. These crystals persist for some time after the amebas have disappeared as the result of emetin treatment.

Dublin Journal of Medical Science

June, 1919, 3, No. 570

Recent Researches on Trench Fever. R. J. Rowlette.—p. 245.
*Eclampsia as Cause of Accidental Hemorrhage. W. Smyly.—p. 257.
Skin Stains and Hair Dyes. W. G. Smith.—p. 266.

Eclampsia as Cause of Accidental Hemorrhage.—The main point emphasized by Smyly in the report of his cases is the fact that many, if not most, of the cases of severe accidental uterine hemorrhage are due to conditions not only closely allied to but identical with those which cause eclampsia.

Edinburgh Medical Journal

June, 1919, 22, No. 6

Acute Poliomyelitis. E. Bramwell.—p. 345.
Diaphragmatic Hernia Following a Gunshot Wound. D. W. Greig.—p. 357.
Field Ambulance in Gallipoli, Egypt, Palestine and France. J. Young. p. 366.

Japan Medical World, Tokyo

June 15, 1919

*Development of Artificial Mammal Carcinoma in Experimental Animals. Yamagiwa and Ichikawa.

Development of Artificial Mammal Carcinoma in Experimental Animals.—The authors succeeded in producing an artificial epithelial carcinoma in the ear of the rabbit by the external application of tar. In the meantime the artificial tumor in the rabbit's ear had been found easily to ulcerate and by the heterogeneous infection of the various bacteria all the transplantation experiments proved negative. The authors therefore endeavored to develop the gland carcinoma artificially and for this purpose considered the mammary glands to be most convenient to treat. The first series of experimental animals were injected twice a month in the beginning of the experiment and later once a month with from 0.5 to 1.0 c.c. of the mixture of lanolin and watery extract of tar in proportion of 1:3 at the beginning and later 1:4. The injection was made at the mammary region and toward the mammary glands. The second series were

injected with the mixture of lanolin and the untreated tar in proportion of 4:1 into the rabbit that had been given the injection of the mixture of lanolin and the watery extract of tar (1:3) as the animals in the first series. The third series of animals were injected with the mixture of lanolin and tar (4:1) from the very beginning of the experiment, twice monthly for the beginning and once monthly afterward. The fourth series of animals was given 0.3 c.c. of tar into the excretory ducts by means of a slender needle* inserted through the nipple. The animals belonging to the first and third series died within from two days (the shortest) to 227 days (the longest); only one animal is still living. The animals of the second series lived from 70 to 227 days. In the fifth series, on the contrary, the animals lived for a considerably long period of time. One of the animals belonging to this series died on the four hundred and sixty-third day and proved the development of flat-epithelial carcinoma in the mammary glands. Although the experiment has not proceeded so far as to prove the involvements of other organs than the mammary gland, nor has the transplantation experiment been tried, but from the results so far attained, the authors conclude that the artificial development of mammary carcinoma is possible.

Journal of Tropical Medicine and Hygiene, London

June 16, 1919, **22**, No. 12

Cure of Bilharziasis by Intravenous Injections of Antimony Tartrate. J. B. Christopherson.—p. 113.
Seven Day Fever. (P. U. O.) W. F. M. Loughnan.—p. 114.
Edema of Eyelids Caused by Ants. A. Marshall.—p. 117.

Lancet, London

June 28, 1919, **1**, No. 26

Rôle of Consulting Surgeon in War. G. Makins.—p. 1101.
*Detoxicated Vaccines. D. Thomson.—p. 1102.
Detoxicated Vaccines in Treatment of Gonorrhea. D. Lees.—p. 1107.
Bacteriology of Influenza in Lower Egypt. G. M. Findlay.—p. 1113.
Case of Rapidly Fatal Ulcerative Endocarditis. M. J. Stewart and H. L. Flint.—p. 1114.

Detoxicated Vaccines.—Thomson is convinced that a prophylactic vaccine for bronchial and nasal catarrh is useless unless it is a mixed vaccine containing every species of germ giving rise to such attacks. He makes a compound detoxicated vaccine composed of a mixture of pneumococci, *M. catarrhalis, B. Friedländer, B. septis,* streptococcus and *B. influenzae* (Pfeiffer), containing 10,000 millions per cubic centimeter. The first dose is 1,500 millions; second dose, 3,000 millions; third dose, 3,000 millions. About 150 persons have been inoculated with two doses in this manner, and as no influenza or catarrhs have been recorded so far among them, except one very mild case, Thomson has considerable hope that this inoculation will prove of marked value in the prevention of these affections. Also during a catarrhal attack this compound inoculation has showed a marked power of bringing the infection to a rapid termination.

Medical Journal of Australia, Sydney

May 24, 1919, **1**, No. 21

Auricular Flutter and Other Cardiac Cases. M. D. Silbergerg.—p. 415.
Secretin Treatment of Diabetic Mellitus. J. Jona.—p. 422.
Case of Separation of Symphysis Pubes, Fracture of Ramus and Rupture of Bladder. E. W. Buckley.—p. 422.
*Case of Probable Rupture of Thoracic Duct. R. H. Martin.—p. 423.

Case of Probable Rupture of Thoracic Duct.—Marten records the case of a man who fell from his motorcycle and landed heavily on the left shoulder. He was able to pick himself up and push his machine home, about 200 meters. He felt very much shaken and retired at once to bed. When dressing the next morning he noticed a large swelling in the left posterior triangle of the neck, somewhat tender to the touch, but soft and not blood stained. It was absolutely painless, almost doughy in consistence, irreducible, noncrepitant, with no impulse on coughing. All the time the swelling was under observation it remained exactly the same. The diagnosis made by exclusion was injury to the thoracic duct, probably not the main duct, but one of the numerous branches it frequently splits up into before it enters the subclaviojugular junction. Nothing was done.

Archives des Maladies de l'App. Digestif, Paris

May, 1919, **10**, No. 3

*Membranous Pericolitis and Chronic Appendicitis. R. Grégoire.—p. 129.
*The Loss of Nourishment in Dysentery. M. Loeper.—p. 153.
Hour-Glass Aspect of Stomach. P. Duval.—p. 163.
Diagnosis of Intestinal Disease. E. Joltrain and P. Baufle.—p. 178.

Membranous Pericolitis and Chronic Appendicitis.—Grégoire remarks that there are few symptoms so difficult to interpret as pain in the iliac fossa. The appendix may be removed without curing the pain, and he relates eight cases in which the appendix could be exculpated. Membranous pericolitis can sometimes be incriminated. The vascular membrane that develops encloses the colon in a sac that is too short for it, and the colon has to bend. If a congenital origin for the membrane is accepted, then we can assume that the colon has been impeded in its growth, like the old custom of deforming the feet of Chinese women. The colon folded in on itself does not allow free passage of its contents. Between two angulations the loop becomes distended and painful, and stasis results. Relief can come only from releasing the colon from its hampering membrane, and fastening it so it cannot fall into the old bends again. In his cases he fastened the right portion of the transverse colon to the anterior abdominal wall. The subhepatic angle was opened wide by this procedure and the normal passage of feces insured. The cure has been complete and permanent in one for seven and one for four years among his eight patients treated by this means. The others are comparatively recent cases or have been lost to sight. The pains had persisted after removal of the appendix in four. In the others the abdominal attack had simulated acute appendicitis, but the membranous pericolitis or Jackson's membrane had been recognized and corrected at the laparotomy. In these cases of constricting bands and membranes, the paroxysmal pain may suggest appendicitis, but the temperature and pulse keep normal during the attack and the abdominal wall does not stiffen. Some of the bismuth meal was retained in the cecum in one of his cases for sixty-four hours. The distension of the right colon is also characteristic, and its outline is smooth and roundish; the cecum end larger than the rest. The ascending colon and the transverse colon may lie like the barrels of a gun, but the kink is movable. The dilatation of the origin of the large intestine is an argument against the assumption that mere movability of the cecum is responsible for the disturbances. The small intestine is naturally extremely movable but this does not induce dilatation and pain. Neither the movability nor the ptosis explains the lesion. The decisive factor is the obstacle against which the bowel beats and exhausts its muscular tonicity in vain. When it is released from this, the disturbances subside.

Loss of Nourishment in Dysentery.—Loeper entitles his article "Les Spoliations Intestinales des Dysentériques" and expatiates on the anemia in these conditions. The losses of mineral substances and of iron in the multiple stools prevent normal regeneration of the blood. The red count is low and also the albumin content of the blood, while there is also a constant draining away of minerals. In treating dysentery, therefore, these facts must be borne in mind and the system supplied with nitrogen, phosphorus and minerals. Meat, milk and vegetables are needed especially in convalescence from dysentery. He does not venture always to give meat to convalescents. They may tolerate it scraped, raw, or very rare, but it may rouse the intestinal infection anew. Raw meat and meat juice are useful for their iron. But milk, he thinks, does not deserve the present ostracism in enteritis. If it induces fermentations and diarrhea, this is more annoying than harmful, and is by no means constant. The milk can be given in soups, gruels, with sodium citrate or homogenized. It is generally borne well. Asses' milk is easier of digestion. Fresh cheese is nutritious. At one meal a day purées of legumes might be given, but lentils and peas rather than beans. Macaroni and spaghetti also contain

albumin. To supply minerals directly is always a delicate matter. If the liver is working well, phosphorus in oil, 1:1,000, influences favorably the metabolism of minerals, especially of calcium. He advises giving it by intramuscular injection of 1 or 2 c.c. at most. This aids powerfully in the retention of calcium taken in the food.

Bulletin de l'Académie de Médecine, Paris

June 3, 1919, 81, No. 22

*Teratoid Tumors of Testicles. H. Hartmann and A. Peyron.—p. 733.
*Cesarean Section. T. Tuffier.—p. 748.
*Surgical Treatment of War Scars. Walther.—p. 751.
*Serotherapy of Typhoid Fever. A. Rodet and S. Bonnamour.—p. 759.
*Cure of Pulmonary Tuberculosis. L. Rénon.—p. 761.
*Detection of Carbon Monoxid. A. Desgrez and A. Labat.—p. 764.

Teratoid Tumors of the Testicles.—Hartmann has compiled fifty cases and has examined personally twenty-seven. The ages of the subjects ranged from 16 to 43. In one case the tumor was in an undescended testicle. Trauma was recorded in some of the cases as having induced or accelerated the course of the tumor. Different embryomas correspond to different stages in the development of the ovum, hence he distinguishes between placentomas and choriomas, and devotes fourteen pages to this detailed study of thirteen of the former and fourteen of the chorioma type.

Cesarean Section for Uterine Tumors.—Tuffier says that this operation is preferable to hysterectomy for fibromas. He has performed it in 135 cases, leaving the woman with comparatively physiologic conditions in the genital sphere. During the same period of eighteen years he has a record of 131 hysterectomies for the same cause. The great objection to cesarean section is possible interference with pregnancy later, but nothing of the kind has occurred in his experience. One girl of 19 who had three fibromas removed by cesarean section has passed through three normal pregnancies since. At necropsy of one woman several years after the cesarean section there was not a trace of the operation to be found except a line on the body of the uterus. In three cases he enucleated large fibromas at the second or fourth month of the pregnancy and abortion followed in one of the cases. In the discussion that followed, Walther corroborated his statements and reported instances of normal pregnancy after enucleation of fibromas in young women. For older women he prefers hysterectomy, and he added that in some cases the development of new fibromas later finally compelled hysterectomy after all.

Operative Treatment of Scars from War Wounds.—Summarized in Paris Letter, p. 125.

Serotherapy of Typhoid Fever.—Rodet and Bonnamour report 127 cases of typhoid given injections of antiserum before the twelfth day. The total mortality was 11 per cent. but there was associated diphtheria or other disease in a number of the fourteen fatal cases. Eliminating these and the cases not seen till the twelfth day bring the death rate down to 2.9 per cent. Even in the fatal cases great benefit was apparent.

Test for Cure of Tuberculosis.—When everything seems to indicate a permanent cure of the pulmonary tuberculosis, Rénon settles the question by what he calls the test of *adaptation progressive à l'activité*. It takes three months; the subject works on alternate days for a few hours, morning or afternoon, with repose in the intervals. The number of hours of work is gradually increased and the days of repose gradually reduced. During the third month, the working hours should be complete. During these three months of gradual resumption of active life the subject should be supervised regularly in respect to weight, temperature, blood pressure and other signs. A slight loss of weight may be expected and also a slight lowering of the maximal blood pressure. But there should be no rise of temperature nor cough nor new expectoration nor the least râle on inspiration by auscultation of the supraclavicular fossa. The fall is the best season for the test, the subject being thus in good trim for the critical spring months.

Test for Carbon Monoxid.—The test is made with paper impregnated with palladium chlorid.

Bulletins de la Société Médicale des Hôpitaux, Paris

May 9, 1919, 43, No. 16

*Cancer of Esophagus. Laignel-Lavastine and J. du Castel.—p. 399.
Ulcerative Rectosigmoiditis Id.—p. 402.
*Plastic Peritonitis. L. Morquio.—p. 406.
Congenital Stenosis of Pulmonary Artery. O. Josué.—p. 408.
*Reflex Acute Edema of Lung. R. Tricoire.—p. 413.
*Azotemia in Acute Nephritis. P. Ameuille and M. Sourdel.—p. 417.
Tachycardia in Young Recruits. C. Aubertin.—p. 420.
Etiology of War Tachycardia. J. Gaillard.—p. 424.
Radioscopy of Heart and Aorta with Tachycardia. J. Gaillard.—p. 426.
Autochthonous Malaria and Dysentery. Lemaire and Zemboulis.—p. 428.

Cancer of the Esophagus.—The woman of 52 had been having rebellious recurring eczema for thirty years when erythrodermia developed, with desquamation, the nails dropping off and the hair falling, with pruritus, emaciation and cachexia, and finally a spontaneous fracture of the tibia and a transient slight difficulty in swallowing. Roentgenoscopy then revealed a cancer in the esophagus, soon confirmed by necropsy, which disclosed multiple metastases in the brain, skeleton and liver. The erythrodermia was probably an early manifestation of the malignant disease.

Plastic Peritonitis.—The four children presented areas of hardness in the peritoneum, actual peritoneal plastrons, causing symptoms for a time but finally entirely resorbed at last. The course was subacute and slow, averaging about three months. The onset was sudden, as with acute peritonitis of appendicular, pneumococcus or gonococcus origin. This was followed by a slow remittent course; suppuration was feared at times and Morquio was on the point of operating more than once, when finally the whole subsided spontaneously. There was a variety of special manifestations according as the circumscribed lesion was located in the pelvis, epigastrium, kidney region or elsewhere. The tuberculin test was negative. In some of the children appendicitis seemed to be responsible and a small abscess in two cases was opened and drained, but an interval appendicectomy showed the appendix apparently sound. One of the children had vulvovaginitis and the peritoneal plastrons were evidently the work of the gonococcus. The children were from 3 to 13 years old.

Reflex Acute Edema of the Lung.—Tricoire remarks that while "pleural epilepsy" has been reported as a reflex accident in the course of thoracentesis, he thinks the case he describes is the first one to be recorded in which syncope and acute pulmonary edema developed from reflex action at the beginning of thoracentesis. The young man's chest had been traversed by a bullet four weeks before, but the wound had healed except for the left pleural effusion. Exploratory punctures had shown that it was sterile. The syncope and acute edema came on as only a few cubic centimeters of the effusion had been withdrawn. He recovered under spartein, venesection and wet cupping, after expectorating nearly a pint of foamy fluid. A similar reflex action was responsible for Flack's case of pulmonary edema from drinking iced water; in Jaccoud's case in typhoid from irritation of the abdominal sympathetic; in Vinay's from irritation of the sensory nerve terminals in the uterus, and in Pinaut's and Joucla's cases from puncture in ascites.

Azotemia and Uroosecretory Coefficient in Acute Nephritis.—Ameuille and Sourdel refer to the two, three or four months following acute and stormy nephritis. They had occasion to examine 101 men under these semilatent conditions. They were impressed with the variability of the findings of the Ambard constant, and warn that several repetitions may be necessary to get an accurate estimate of the true condition.

Journal de Médecine de Bordeaux

June 10, 1919, 90, No. 11

Compound Fracture of the Humerus. G. Jeanneney.—p. 215.
*The Biologic Laws Governing Implants. Bonnefon.—p. 218.
Pupil Reflexes to Light. Cabannes.—p. 222.
The Limits of Specialization. P. Mauriac.—p. 223.
Proposed Reorganization of Medical Course. J. Bergonié.—p. 226.

Biologic Laws Governing Implants.—Bonnefon relates experiences which demonstrate the general law that a healthy graft transplanted into pathologic tissue becomes pathologic

itself, while a pathologic graft transplanted into sound tissue may lose its pathologic tendency and grow normal in time. An interesting example of this is the Morax operation on the opaque cornea. With this, a disk is cut from the opaque cornea and another from the transparent periphery, and the disks are transposed. The transparent implant being permeable, like all autografts, becomes invaded by the abnormal elements surrounding it. The connective tissue persists unmodified, but the invading cells destroy its transparency and it gradually becomes opaque. On the other hand, the pathologic opaque graft, implanted in sound tissue, grows normal and in time becomes transparent. The two grafts thus progress in opposite directions, the direction determined by the normal or pathologic character of the bed. The cellular elements in each graft die off and are substituted by cells from the environment. If the environment is normal, the invading cells will aid in regeneration of normal tissue; otherwise not. The prospects therefore of plastic operations on the cornea are not very promising, but Bonnefon's experiences confirm that if a small pathologic process can be cut out completely and then reimplanted in the old site, the environment being normal, it will be invaded by normal cells and lose its pathologic characteristics.

His theoretical premises have been effectually corroborated by his success in treating pterygium by this means. This pterygium process recurs again and again after its excision, so that with none of the operative procedures in vogue can a favorable result be guaranteed. But in the two cases treated on the basis of this biologic law, his success has surpassed his highest anticipations. He excised the pterygium far into sound tissue and transferred it to a glass slide. After staunching all bleeding he reimplanted the pterygium in its old bed, but turned it around, so that the head which had been adherent to the cornea faced the internal angle, and the base fitted against the corneal limbus. In twenty-four hours the pterygium had completely lost its morphologic characteristics. The vascular network was dislocated, destroyed, replaced. The following day the aspect of the graft was merely that of an irregular rectangle of a uniform cherry red, slightly edematous. The inflammatory phenomena soon subsided and from all sides, except the corneal limbus, delicate vessels could be seen making their way toward the center of the expterygium. In two or three weeks it was absolutely impossible to detect a trace of the former pterygium. The aspect is that merely of an ordinary autoplastic graft of conjunctival tissue. He thinks these two experiences should interest surgeons generally as they confirm with precision the biologic laws deduced from his extensive experimental research. In the pterygium we can inspect with the naked eye the changes in implants which otherwise we have been able to trace only with the microscope.

Paris Médical

May 31, 1919, 9, No. 22

*Influenza of the Thorax. R. Voisin and Benhamou.—p. 421.
The Physiologic Jugular Venous Pulse. E. Stiénon.—p. 427.
*Vomiting of Infants. G. Schreiber.—p. 430.

Treatment of Influenza.—Voisin and Benhamou comment on the liver-kidney signs, the cardiovascular and the nervous signs which reveal the involvement of different organs. The physician has to be on the alert to detect insufficiency in the suprarenals and liver in their task of neutralizing toxins, insufficiency of the emunctories (liver, kidneys), and the violence of the general infection. The prognosis in malignant influenza depends on his prompt recognition of the signs of any of these and steering the patient past them. They describe in detail the treatment for each of these contingencies as they applied them during the pandemic, and credit their low death rate—3.5 per cent.—to their vigilant watch for these special signs outside of the respiratory apparatus.

Treatment of Vomiting in Infants.—Schreiber advises in addition to regulation of the diet and application of hot compresses or ice to the stomach, lavage of the stomach two or three times a day if the vomit has a butyric odor or there are symptoms of intoxication. A teaspoonful of a solution of 2 gm. sodium citrate in 120 gm. distilled water may be given just before or with the feeding. If the vomiting seems to be due to defective gastric secretion, hydrochloric acid or pepsin or both might be given, or pure gastric juice. With spasm of the stomach or pylorus, sedatives are indicated. Operative measures should be decided on promptly if medical measures fail.

Presse Médicale, Paris

May 29, 1919, 27, No. 30

*Radiology of Intestines. Raulot-Lapointe and E. Sorrel.—p. 289.
*Rubeola. C. Lesieur and P. Jacquet.—p. 292.

Exploration of the Large Intestine.—Lapointe and Sorrel state that they have never had the slightest mishap with bismuth carbonate which they have used for the contrast meal more than 2,000 times. They expatiate on the special advantages of orthodiagrams, and of the practice of giving the bismuth in an enema for radioscopy, to supplement the findings of the contrast meal.

Blood and Gland Reactions in Rubeola.—Lesieur and Jacquet call attention to the enlargement of the supratrochlear gland which was a constant finding in all their cases of rubeola. It is seldom palpable in health but it was found plainly enlarged on palpation on one or both sides in all their cases of rubeola. The blood findings also seemed to be characteristic, a mononuclear leukocytosis, affecting mostly the medium forms, with a slight mast-cell leukocytosis with beginning convalescence. In measles, there is only the ordinary polynuclear leukocytosis; in scarlet fever, polynucleosis is pronounced.

June 9, 1919, 27, No. 32

*Practical Cardiography. C. Laubry and A. Mougeot.—p. 309.

Pneumocardiography.—Laubry and Mougeot improvised with a webbing belt and a bicycle inner tube an apparatus for recording the heart action, on the principle of the instruments which record the blood pressure. They give some tracings with this pneumography, having studied with it mostly periodical sinusal arrhythmias, with or without a respiratory factor.

Progrès Médical, Paris

May 10, 1919, 34, No. 19

*Early Diagnosis of Pulmonary Tuberculosis. A. Philibert.—p. 179.
Mineral Waters and Pulmonary Tuberculosis. J. Galup.—p. 183.
*The Reaction to Epinephrin in Hyperthyroidism. A. Bernard.—p. 185.

May 17, 1919, 34, No. 20

Importance from Social Standpoint of Early Detection of Tuberculous Nature of Morbid Conditions. E. Sergent.—p. 189.
Roentgen Aspect of Gassed Lungs. L. Moreau.—p. 191.
Erysipelas in the Newly Born. Lesné.—p. 192.
Mineral Waters and Chronic Bronchitis. H. Flurin.—p. 193.
Latent Gastric Cancer with Metastases in the Bones. Roubier.—p. 196.

Early Diagnosis of Pulmonary Tuberculosis.—Philibert warns that percussion and auscultation should be done with the mouth open and repeated with the mouth closed, to eliminate modifications for which the narrowness of one or both of the nasal passages may be responsible. There may be no fever with incipient tuberculosis, but the temperature responds with an excessive reaction to slight harmless causes, and this thermic instability may turn the scale. It can be tested with an injection of saline or by the thermic effect of an hour's walk. He keeps the soldier a week in bed and then examines him again after he has been up a week. To obtain sputum, if there is no expectoration, he gives a potion consisting of 0.5 gm. white oxid of antimony in 120 gm. of a mucilaginous vehicle. This stimulates bronchial secretion. If the findings are negative even with homogenized sputum, the test can be repeated later at weekly intervals two or more times. If the temperature runs up after a moderate walk of an hour, this signifies that whatever the cause, repose is indicated, especially if other signs point to tuberculosis.

The Reaction to Epinephrin in Hyperthyroidism.—Bernard reviews some recent works on the influence of epinephrin when the thyroid is functioning to excess. With hyperthyroidism there is evidently some special susceptibility to epinephrin on the part of the sympathetic vasomotor nerve terminals. An injection of 0.5 mg. of epinephrin will induce

tachycardia and send up the blood pressure, and it may not return to normal for an hour and a half. This test reaction is important in dubious cases suggesting exophthalmic goiter but without the cardinal signs of it. An operation on the thyroid in such cases often reveals the thyroid studded with small adenomas, too small to be palpated. The subsidence of all the symptoms afterward confirms the assumption of the causal hyperthyroidism. This is particularly important in the group of cases in which the excessive functioning of the thyroid is responsible for conditions labeled psychoneuroses, psychasthenia and neurasthenia, without any appreciable ocular, vasomotor or cardiac symptoms. The slightly positive reaction to the epinephrin test encourages an operation on the thyroid, and this reveals numerous small adenomas in the gland.

Revue Neurologique, Paris

November-December, 1918, **34**, No. 11-12. War Neurology Number

Syndrome of the Posterior Foramen Lacerum. M. Vernet.—p. 117.
Tardy Results of Suture of Nerves. Cestan.—p. 148.
The Psychogalvanic Phenomenon in Some Cases of Sensory Disturbances after War Wounds of Brain. O. Veraguth and H. Brunschweiler.—p. 151.
Case of Psychic Disequilibration. L. Babonneix and M. Brissot. —p. 163.
Classification of Nervous and Mental Diseases and the War. R. Benon.—p. 168.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 24, 1919, **49**, No. 21

*Outcome of Surgical Tuberculosis. De Quervain and Hunziker.—p. 761.
*Children's Pavilion for Contagious Disease. E. Feer.—p. 777.

Outcome with Surgical Tuberculosis.—De Quervain and Hunziker report on the present condition of 537 patients given operative treatment at Basel in 1913. The data presented show that tuberculous processes in fingers, toes, wrists, glands, tendons, soft parts and skin can be successfully treated almost anywhere. With tuberculous lesions in ribs, sternum, clavicle, scapula, radius or ulna, urogenital organs, intestines or peritoneum one is justified in applying treatment in the mountains or the lowlands as most convenient. But treatment in a mountain climate is extremely desirable with tuberculous lesions in the spine, pelvis, humerus, shoulder, femur, tibia or fibula, and in the hip, knee and ankle joints. The advantages of a mountain climate in this group are evident in his figures, and he expatiates on the necessity for a mountain sanatorium for this group as an annex to other hospitals. For the whole of Switzerland, probably one fifth of the average 15,000 cases of surgical tuberculosis require altitude treatment in addition to the other measures. The aim should be therefore to provide mountain sanatorium accommodations for these 3,000 that require it, with a system of interchanges between sanatoriums and hospitals to give this special group the advantages of altitude. Even those patients already living in the mountains need the care and training of a sanatorium. The course of treatment with surgical tuberculosis usually takes one or more years while the course with pulmonary tuberculosis is generally restricted to a few months. As children form the large contingent of surgical tuberculosis cases the loss of time does not matter so much. The system of sanatoriums should be supplemented with institutions where the convalescent and recovered should be gradually accustomed to resume work and train for future activity under medical supervision. There should be a kind of employment bureau in connection, designed for these more or less handicapped persons.

Contagious Disease Hospital for Children.—Feer relates that in a total of 1,000 cases of various infections, from measles and scarlet fever to poliomyelitis, in the last three years at the children's clinic at Zurich he only had two cases of house infection develop, and in both of these instances an avoidable broken link in the chain was detected. This pavilion is built on the glass cubicle plan and even the larger rooms can be partitioned off with glass walls. The hospital has thirty beds and they have been constantly occupied, different infectious diseases succeeding each other in the same cubicle with only the two instances of house infection mentioned above. No one enters the cubicle except the one or two nurses, and they enter it as seldom as possible and then attend to everything at once, take the temperature, etc. The medicines and packs are ordered without too brief intervals. He adds that it is not a mere coincidence that the two cases of house infection were with measles and varicella. These are spread so easily that he insists on the window being shut from without before the cubicle is entered when it contains a patient with either of these diseases. Among other practical points noted is the warning that simple measles and influenza cases develop pneumonia as soon as a case of pneumonia is placed near them. Feer extols this cubicle type of hospital as the ideal for small towns. It is much better supervised and can be run with less expense than hospitals with special departments devoted exclusively to scarlet fever or diphtheria.

Gazzetta degli Ospedali e delle Cliniche, Rome

May 1, 1919, **40**, No. 35

*Post-Typhoid Complications in Bones. U. Tassone.—p. 329.

Post-Typhoid Complications in the Bones.—Tassone reports the case of a young man who developed multiple abscesses in different bones, with a tendency to hyperplasia at different points that compelled surgical intervention. Typhoid bacilli were cultivated constantly from the pus. The bone complications may not develop until after quite an interval. Adolescents form the majority of those affected, and the tibia, scapula and metatarsus are the bones usually involved. Trauma may aid in starting the process. It may manifest itself only by rheumatoid pains with final spontaneous resolution. Or there may be acute or chronic osteoperiostitis with or without much destruction of tissue. These complications usually develop during convalescence, accompanied by a little fever, worse at night as a rule. There may be an interval of several months before the chronic form develops, and the course may suggest a cold abscess lingering for months or years. The typhoid bacilli cultivated from these indolent processes may display great virulence, showing that the slow course is determined by the resisting power of the tissues. The chronic nonsuppurating type may entail production of exostoses and deformity requiring surgical measures; the pains with this are of the same type as in the chronic suppurating form. The deformity may affect both legs, with actually crippling contracture and atrophy of the muscles as in Chantemesse's case, but this is extremely rare. He reports a case of this kind in a robust young farmer. During convalescence from the typhoid he complained of pains throughout his body but they finally settled in one foot, but after incision of the abscess here, others developed at various points. Hyperplastic processes rapidly developed crippling him and finally requiring operative correction for knee and ankle, with resection of bone and section of the Achilles tendon. The typhoid bacillus seemed to be solely responsible for the various lesions. The operation was done nearly three months after the onset of the typhoid fever and three more months passed before the young man was discharged completely cured, his joints functioning normally.

May 4, 1919, **40**, No. 36

*War Wounds of Skull and Brain. E. Greggio.—p. 339.

Skull Wounds.—Greggio here summarizes his impressions from thirty-nine cases of wounds of skull and brain that passed through his service. He classifies them by the site of the injury and describes symptoms and outcome.

Pediatria, Naples

June, 1919, **27**, No. 6

Initial Phase of Scurvy in Infants. O. Cozzolino.—p. 321. Cont'n.
*The Wassermann Reaction with Human Milk. C. L. Rusca.—p. 343.
*Hemorrhagic Meningeal Complications with Whooping Cough. A. F. Canelli.—p. 351.

The Wassermann Reaction with Human Milk.—Rusca examined breast milk from forty women, including fifteen free from syphilis and sixteen with certain syphilis. The response was constantly negative in milk from normal women at the second to the ninth month of pregnancy but there was

a weak reaction in the colostral milk. The reaction was always pronounced in milk from the syphilitic women but, under treatment, the reaction disappeared from the milk parallel to its disappearance from the blood. By testing the milk we can thus gain an insight into the woman's condition without her knowledge.

Meningeal Complications of Whooping Cough.—Canelli found at necropsy of two infants, 6 to 23 months old, who had died during whooping cough, pathologic changes in meninges and brain. These intracranial lesions seemed to be direct complications of the pertussis. Both children had been born spontaneously and there had been no signs of a nervous affection until the brain and meningeal symptoms developed after whooping cough had been installed for a few weeks. There was nothing else found or learned to explain the lesions. Both infants died in coma. No histologic lesions were found in the intracranial vessels. It is possible that the minute hemorrhagic foci in brain and meninges may have been due to the action of carbon dioxid from the asphyxia during a coughing paroxysm or to the increased blood pressure during a spasm, but the vessels could not have yielded unless they had been already weakened by the toxic infectious action of the pertussis.

Policlinico, Rome

June 8, 1919, **26**, No. 23

The Pandemic of Influenza. A. Marrassini.—p. 705.
*Asthma. G. Sabatini.—p. 709. Com'd No. 22, p. 673.
Case of Elephantiasis of the Vulva. J. Aboulrage.—p. 722.

Asthma.—Sabatini remarks that few ailments have had such an abundant flora of remedies of all kinds as asthma, empiric and scientific. The treatment has to be twofold, to arrest the attack and abolish the cause. We can act to arrest the spasm of the constricting muscles or to stimulate the dilating muscles. Epinephrin and pituitary extract have proved their usefulness in arresting an attack. His experience and that of others seems to indicate that even prolonged administration of these two is harmless. He knows of a man of 65 who has been taking almost daily injections for six years of a preparation containing both these, and he has never shown the slightest sign of general disturbance from it. The theoretical fear that it might send the blood pressure up has not been confirmed by experience; the patient referred to has still a pressure rather below what might be expected at his age. Intrabronchial sprays of epinephrin are uncertain, and Sabatini regards them as uncalled for "as the subcutaneous injection is so magnificently certain," although the mechanism of its action is still unknown. Treatment of asthma on the basis of its being a manifestation of anaphylaxis has been much simplified by the use of peptone. This seems to desensitize in cases of asthma, whatever the antigen responsible for the sensitization. Time and experience will show what to expect from peptone treatment. It is too early yet to determine definitely its efficacy in such an obscure, capricious and rebellious malady as asthma.

May, 1919, **26**, Medical Section No. 5

*Amebic Abscess in Liver. T. Pontano.—p. 169.
*Relative Seroprophylaxis in Influenza. G. Tizzoni and G. Vernoni. —p. 187.
*Pleuro-Typhoid. E. Mondolfo.—p. 193.
Malaria in Italian Soldiers. C. Pezzi.—p. 199. Cont'n.

Amebic Liver Disease.—Pontano remarks that the absence of amebas from the stools does not exclude the amebic origin of an abscess in the liver. The abscess is not always single, and there may be no history of dysentery in the antecedents. Of great differential importance, however, are the microscopic findings in the puncture fluid from the abscess. It consists mostly of cellular detritus, hematoidin crystals and a few scattered reds, with droplets of fat and a few rare whites scarcely recognized and not taking anilin stains, while the fluid is usually bacteriologically sterile. He cites various authorities who emphasize the difference between this colliquative necrotic process and true inflammatory suppuration. In the first of Pontano's two cases the abscess developed in the liver six years after the amebic dysentery, but in the second case there never had been any appreciable symptoms of dysentery at any time. No amebas had been found in the stools or by exploratory puncture, and the abscesses were sterile except for the colon bacillus in one case. The abscess contents were the characteristic albuminous fluid with detritus instead of pus, and the prompt cure in both cases under emetin confirmed the diagnosis. The abscesses retrogressed and were absorbed under vigorous subcutaneous emetin treatment.

Seroprophylaxis of Influenza.—Tizzoni and Vernoni found the richest bacterial flora in influenza in the lungs and pleural effusion, streptococci and staphylococci predominating. The former seemed to be of a special type in the complicated cases, intermediate between the pneumococcus and the streptococcus. It induced invariably in rabbits and mice fatal pleural, pulmonary and peritoneal processes, and they regard it as unmistakably responsible for the complications of influenza. They injected two horses with two strains of this bacterium, and then injected animals by the vein with the serum from these horses, twenty-four hours before injecting them in the pleura with cultures of the bacterium in a dose sufficient to kill the controls. The controls all died from the fourth to the ninth day with purulent pleuropericarditis, but the serum-treated animals all survived. The serum, however, proved effectual only for the same strain that had been used in procuring the antiserum. They regard this experimental work as promising an effectual treatment to ward off the complications of influenza, until we discover means to ward off the disease itself.

Typhoid Pleuritis.—The robust man recovered after nearly an eight weeks' course. The symptoms from the pleura were the first to appear, and with a stormy onset, not explained until the twelfth day disclosed typhoid bacilli both in the pleural effusion and in the blood. Tests the sixth day had been negative. The ordinary symptoms of typhoid, enlargement of the spleen, epistaxis and watery stools did not appear till the second or third week. Mondolfo compares this case with similar ones on record. The earlier the involvement of the pleura, the milder the case seems to be, he states. Later pleuritis is liable to become purulent.

Riforma Medica, Naples

May 17, 1919, **35**, No. 20

*Surgical Aid to Remineralization in Tuberculous Hip Joint Disease. D. Maragliano.—p. 394.
*Erythrodermia with Chronic Articular Rheumatism. P. F. Arullani. —p. 397.
*Quinin, Malaria and Influenza. T. Silvestri.—p. 402.
Diagnosis of Esophageal Tumors. G. Molinari.—p. 402.
Set of Symptoms from Injury of Last Four Cranial Nerves. E. Aievoli.—p. 404.

Surgical Remineralization in Tuberculous Hip Joint Disease.—Maragliano here shows the ultimate outcome in the first two cases of tuberculous coxitis in which he sought to combat the demineralization by introducing a bone and periosteum implant. The patients were a boy of 5 and a girl of 8, and radioscopy showed pronounced demineralization in the healed process. He then drove a bar of bone tissue, taken from the tibia, through the neck, head and cotyle, hoping to supply thus at the spot the minerals needed for the regeneration of the bone. He here gives the radiograms of the cases taken four years later. They testify to the favorable and definite results obtained. Everything seems to indicate that the bone implant materially facilitated and hastened complete repair. The stiff joint in the boy has gradually regained its function. The coxitis in the girl had been so extensive and destructive that the regeneration in eight months was a great surprise. The implant of bone and periosteum was completely absorbed in time in both cases. His previous article on the subject was summarized in these columns recently, June 7, 1919, p. 1709.

Chronic Rheumatism and Dermatoses.—Arullani concludes from the five cases he has encountered that uric acid occurs in the blood more often than is generally recognized. It can be readily detected by Garrod's thread test. The uricacidemia may be responsible for certain unusual skin affections as well as for chronic articular rheumatism. In the patho-

genesis of chronic articular rheumatism a special soil, inherited or acquired, can always be assumed.

Quinin, Malaria and Influenza.—Silvestri asserts that the malaria, rather than the quinin, was responsible for the way in which the malarial inmates of hospitals escaped influenza during the pandemic. Not only malaria, but any infectious disease seems to protect against influenza while it lasts. This immunity ceases however, after recovery, and during long latent periods in malaria. He emphasizes that these facts confirm anew the slight resisting power of the influenza virus in respect to other germs. Secondary infections overcome and crowd out the influenza virus, the patient rapidly becoming harmless, so far as infecting others is concerned. Search for the influenza virus, therefore, is bound to fail, if secondary infections are already installed. Only in the first three or four days at most are we liable to encounter it. The systematic use of quinin in prophylaxis of influenza does not seem effectual in warding off the disease, at least in the doses usually given, up to 1 or 1.2 gm. per day. But the quinin given in this way seemed to have a pronounced attenuating influence on the course of the influenza when it developed. This was also observed with quinin given systematically in scarlet fever and measles.

Annaes Paulistas de Med. e Cir., S. Paulo

October, 1918, **9**, No. 10

High Agglutinin Content in the Serum of Patients Inoculated with Antityphoid Vaccine. A. P. de Ulhoa Cintra.—p. 217.

February, 1919, **10**, No. 2

*Recent Research on Hookworm in Indonesia. S. T. Darling.—p. 25.
Six Operative Cases of Foreign Bodies in Alimentary Canal. M. Gatti. —p. 39.

Hookworm in the Malay States and Netherlands Indies.—Darling's research was conducted under the auspices of the Rockefeller Foundation. He relates that malaria is so frequent in Indonesia and hookworm so prevalent that it is difficult to tell to which to attribute the anemia. He tabulates the figures for different localities and the treatment found most effectual. It was found that the initial purge could be omitted without detriment, which rendered it possible to treat larger numbers in less time. But it is indispensable to refrain from eating, the morning of the day the chenopodium is taken, and the afternoon and evening meals must be light, leaving little residue. The stomach and small intestine should be empty, as otherwise the drug is absorbed and its action impeded by particles of food.

Archivos de Ginecopatía, Obstet. y Ped., Barcelona

May, 1919, **32**, No. 5

*Early Diagnosis of Uterine Cancer. Vital Aza.—p. 97.
Venesection in Eclampsia. H. Bouquet.—p. 106.
Interminable Pleurisy. H. Bouquet.—p. 108.

Early Diagnosis of Uterine Cancer.—Aza joins in the universal lament that nearly 90 per cent. of the cases of uterine cancer are beyond medical and surgical aid when first seen by the physician. The family physician and midwives are not enough on the alert to detect cancer, and the women themselves pay no heed to their symptoms. It seems to be impossible to convince women that repeated losses of blood are not a normal feature of the menopause. Even when the family physician is consulted, too often he reassures the woman that her hemorrhages have no significance and will soon right themselves, or he prescribes merely ergot or hamamelis. If the woman is young, the equanimity of the family physician is usually even greater. Few insist on palpation of the vagina, and precious time is wasted while the woman's doom is being sealed. Even when the physician palpates the vagina, he is apt to discard all suspicion of cancer if the cervix feels normal, while the cancer in the fundus proceeds in its course. Thus tranquilized by their family physicians, the women pass to their doom until pains and fetid discharges drive them to the specialist. It is remarkable, Aza declares, now placidly women regard even extensive genital hemorrhages. A loss of even 50 gm. of blood from mouth or nose would send them in alarm to the physician, but they seem to be calmly indifferent to losses of blood by the genitals, of a pint or even a quart of blood. They even seem to be proud of these genital hemorrhages, as an expression of their sex. Only when the genital hemorrhages are brought on by a known trauma are the women disquieted by them. Cancer should be regarded as practically certain when there are repeated spontaneous or traumatic losses of blood, no matter how minute, or oozing of "meat washing water," at intervals of ten or twelve days or less, and the cervix does not feel quite normal. Aza now has in his charge two women of 26 and 23 presenting these unmistakable findings. Even when the cervix is normal, there may be a cancer in the fundus. Any hard, friable excrescence that bleeds readily and can be fragmented with the finger nail is cancerous, as well as actual ulceration in the cervix. Where there is the slightest doubt, a scrap of the cervix or uterine mucosa should be sent to some laboratory for examination.

Rev. Sud-Amer. de Endocrinología, etc., Buenos Aires

Feb. 15, 1919, **2**, No. 2

Minute Doses in Tuberculin Treatment. Cetrangolo.—p. 33.

Revista de la Universidad de Buenos Aires

January-April, 1919, **41**, No. 140

*The Island of Langerhans and Its Endocrine Function. P. J. Garcia. —p. 7.
*Clinical and Surgical Comparison of Pubiotomy and Symphysiotomy. D. Iraeta.—p. 27.

The Island of Langerhans.—Garcia analyzes what has been published on the possible endocrine function of the pancreas, and warns that the idea that the islands of Langerhans are closed follicles must be abandoned once for all. They are formed of epithelial cells, and they undoubtedly pour an internal secretion directly into the blood vessels, but at the same time they discharge an external secretion. This dual secretion is bipolar, possibly alternate, but not simultaneous, like the secretion in the liver. The islands of Langerhans and the acini seem to be reversible after a certain time. Regulation of sugar metabolism also seems to be under the control of the secretion of the islands of Langerhans.

Pubiotomy versus Symphysiotomy.—Iraeta devotes over a hundred pages to this study of the comparative advantages of these methods. There are fifty-seven illustrations in the text. His final decision is in favor of symphysiotomy for various reasons, especially the ease, simplicity and security of the technic under local anesthesia.

Siglo Médico, Madrid

May 3, 1919, **66**, No. 3412

*Insufficiency of the Pancreas in Children. C. S. de los Terreros. —p. 353.
*Chronic Vesiculitis. A. Pulido Martin.—p. 356.
Influenza. C. M. González.—p. 360.

Insufficiency of the Pancreas in Children.—Terreros explains that the pancreas function does not become installed until about the fifth month of life, and even then may not be complete for a time. This is a factor in the disturbances in children under 2 fed too exclusively on any starch, or given meat prematurely. This throws so much work on the pancreas that it becomes exhausted. Even in older children this insufficiency of the pancreas occurs more often than generally recognized. A test meal with a given amount of fat, butter, for example, will show a much larger proportion of fat in the stools than would be the case in a normal child. More than two thirds is passed unutilized. The stools are pasty and bulky, with visible fat, and the urine is ammoniacal. In young children a change of diet answers the purpose. In older children the pancreas may be too pathologic for proper function and organotherapy may be advisable. He warns that he has often found commercial preparations of the pancreas unreliable, and has been forced to use the fresh gland (pieces weighing 0.5 gm. enclosed in capsules that are not dissolved by the gastric juice). The blood in his cases showed slight anemia, leukopeny and lymphocytosis. This seems to be the principal cause of the low blood pressure, the emaciation and the infantilism. He has never succeeded in palpating the pancreas in children.

Treatment of Chronic Inflammation in the Seminal Vesicles.—Pulido Martin emphasizes the importance of lesions in the seminal vesicles as responsible for certain persisting periurethral processes and chronic gonorrheal pseudorheumatism. In about 50 per cent. of the cases the vesicles give no sign of trouble, but in the others the symptoms may be intolerable. They are often mistakenly credited to the prostate and the prostate is maltreated in consequence. As a rule, however, the physician has to locate the source of the disturbances by the history of the case, by palpation, through the rectum, of the vesicles with fingers and instrument, by microscopic examination of the fluid, and by transilluminations. With chronic pseudorheumatism and recurring epididymitis, especially the alternating form, the seminal vesicles will be found diseased as also with tenacious urethritis. His experience has been very favorable with injection of a germicide into the vas deferens, to reach the vesicles by this indirect route. The amount injected is too small to induce muscular contraction in the vesicles, so it is not expelled by them if they have previously been emptied by massage. Whatever the theoretical objections to this, the practical results have been most gratifying. He does not suture the minute opening made in the vas deferens but closes it with collodion before suturing the skin over it; this has always answered the purpose. He has never had pain or inflammatory reaction in or around the vas or in the epididymis. He gives the details of seven cases cured by this means of chronic disturbances, reaffirming in conclusion that in half the cases the seminal vesicles themselves are silent although responsible for the chronic disturbances.

May 10, 1919, 66, No. 3413

Morbid Constitutions. C. Calleja.—p. 373. Cont'n.
*Modern Conception of Syphilis. J. L. Carrera.—p. 376.

Modern Conception of Syphilis.—Carrera writes from the pathology laboratory of the University of Michigan to summarize the present conception of syphilis. It primarily affects the vessels. Then it develops interstitial lesions and, finally, parenchymatous lesions. Fibrosis, infiltration of lymphocytes, and plasma cells are remarkably frequent in syphilis, but the early attack on the vessels is most surprising. The disease is principally and primarily a vascular disease. He discusses the microscopic findings in the different organs and tissues in turn.

Acta Scholae Medicinalis Univ. Imp. Kioto

Jan. 25, 1919, 2, No. 1

*Action of Peptone on the Circulation. S. Kondo.—p. 1.
*Actios. of Veratrin on the Vessels. S. Kondo.—p. 19.
*Nature of Trachoma. K. Hiwatari.—p. 31.
Formation by Bacteria of d-beta-Imidazolyl-Lactic Acid from l-Histidin. K. Hirai.—p. 49.
*Origin of Blood Cells. K. Kiyono and T. Nakanoin.—p. 55.
*Elimination of Cleavage Products of Albumin. N. Suzuki.—p. 139.

Action of Peptone on the Circulation of Blood.—Kondo's experimental research has confirmed that peptone injected intravenously reduces the blood pressure and has a constricting action on the vessels in legs and ears, while it dilates the splanchnic vessels. The constricting action on the vessels in the rabbit ear is followed by a relaxation which occurs earlier the higher the concentration. If constriction has already occurred under the influence of epinephrin, the peptone does not constrict the vessel further but the contraction of the vessel subsides rather earlier than under the influence of Ringer's solution.

Action of Veratrin on the Vessels.—Kondo reports experiences which seem to demonstrate that veratrin, like epinephrin, acts on the nervous elements in the vessel wall. Its powerful vasoconstricting action relaxes somewhat when the vessels are continuously irrigated with it. The constricting action does not manifest itself if the vessels have been previously irrigated with 0.01 per cent. quinin or 0.05 per cent. atropin. Epinephrin behaves in the same way to quinin and atropin. On the other hand, tests with a barium salt showed that its vasoconstrictor action was not modified by the quinin and atropin. He accepts this as evidence that barium acts on the contractile rather than on the nerve elements in the vessels.

Nature of Trachoma.—Hiwatari discusses both trachoma and the normal histology of the conjunctiva, with a large colored plate.

Origin of Blood Cells.—Kiyono and Nakanoin trace the pedigree and the development of the cells in minute detail through the three stages of blood production, embryonal, etc. They show fifty-seven stained specimens in four large colored plates, with nearly six pages of bibliography. They assert that what they call the "histiocytes" diverge early from the lymphoid stem. They review the morphology of the histiocyte cells in mammals and cold-blooded animals, their functions, their place in ontogenesis and phylogenesis, and report research with vital staining in invertebrates.

Elimination of Albumin Cleavage Products.—This first communication on Suzuki's research in this line, describes the occurrence of phenaceturic acid in normal goat urine, with special regard to the relations between the food and the elimination of the acid.

Mitteilungen a. d. med. Fakultät. d. k. Univ. Tokyo

Sept. 10, 1917, 19, No. 1. Rec'd June, 1919

*Automatism and Coordination of the Heart. S. Nukada.—p. 1.

Automatism and Coordination of the Heart.—Nukada's monograph fills this entire number, 164 pages, and is accompanied by twenty-one plates, many of them colored. The research was done mainly on the heart of *Limulus longispina*, a species of king-crab, but the findings were compared with those in vertebrates, reptiles, etc. The electrocardiograms of the limulus heart are very much like those of the mammalian heart. In both, he concludes, the nerve tissue seems to be responsible for the heart beat; the muscles take no part in the formation or transmission of the impulse or the coordination of the heart. The sinus node and bundle are merely a prolongation of the auricle which accompanies the nerve tissue and possibly supports and protects it.

Mitteilungen a. d. Path. Inst. Univ., Sendai, Japan

March 24, 1919, 1, No. 1

*Degeneration and Regeneration in Peripheral Nerves. O. Kimura.—p. 1.

Degeneration and Regeneration in Peripheral Nerves.—Kimura's article fills the 160 pages of this new journal, with five large plates and a table and ten illustrations in the text. He describes experimental research on the histologic processes of degeneration and regeneration in the peripheral nervous system, especially nontraumatic degeneration, with special regard to conditions in human polyneuritis, and other deficiency diseases. There are 214 bibliographic references, titles given in full.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

April 12, 1919, 1, No. 15

The Language of Medical Writings. IV. A. Kluyver.—p. 1157.
Medical Education in Austria. G. van Rijnberk.—p. 1161.
*Scrofulous Ophthalmia. L. K. Wolff.—p. 1168.
*Latent Sinusitis with Reflex Neurosis. I. C. Henkes.—p. 1177.
Visual Disturbance with Wounds of Back of Head. G. ten Doesschate.—p. 1183.

Nature and Treatment of "Scrofulous" Ophthalmia.—Wolff apologizes for retaining this term, but says it conveniently classifies the cases in which at some time there has been a tuberculous inflammation in the eye, leaving it hypersensitive to the tuberculous toxin. Certain lymph glands in the vicinity may also have been the seat of a tuberculous process which may or may not have subsided into a latent stage. In any event, the tuberculous toxin occasionally gets mobilized, and when it reaches the hypersensitive eye it induces phlyctenas. The latter do not develop in animals, and tuberculous processes in the neck glands seldom occur in animals except possibly in the hog. Wolff urges examination of the eyes when tuberculous processes are found in the cervical glands in hogs. It is possible that obstinate eczema may likewise be a manifestation of local toxic action on a healed tuberculous lesion which has left the area hypersensitive. Other germs play a secondary but important rôle. Treatment may aim to abolish the tuberculous foci generating the toxins which act on the eye, or it may aim to reduce the

sensitiveness of the eye. A course of tuberculin would aid in the latter, but roentgen treatment of the tuberculous glands has proved the simplest and easiest method to eradicate the toxin-generating foci. No operative measures were attempted except to aspirate when necessary. At most 4 H. units were given at a time, with an aluminum filter 5 mm. thick. Roentgen exposures have no influence on the phlyctenular inflammation or corneal ulcer itself, but exposures of the tuberculous glands dry up the stream of toxins at its source. As adjuvant he has found silver fluorescein useful, especially in a 5 per cent. salve in white petrolatum, applying a little every hour in the conjunctival sac. The same principles were applied in treatment of benign tumors of the eye, and the glandular lesions in the neck retrogressed without recurrence in three of four cases, but the eye lesion was not influenced, in contrast to what is observed with the phlyctenular ophthalmia. The latter disappears as the glandular lesions retrogress, as he shows in a table of fourteen cases. After removal of a sarcoma of the conjunctiva in another case, the eye was subjected to roentgen exposures and no harm seemed to have been done, no microscopic changes from them were evident when the eye was enucleated over two years later on account of recurrence of the sarcoma. Encouraged by this, he applied the roentgen rays directly to the eye and with brilliant success in his first two cases. One was a girl of 18 with iridocyclokeratitis and numerous nodules in the iris; the other patient had keratoscleritis with an ulcerating nodule in the cornea. The lesions were entirely cured in a few days, but there was recurrence in the second case. In three other cases of scleritis great benefit was derived, but not so promptly. The lymph glands had better be exposed at the same time, he says.

Latent Sinusitis with Reflex Neurosis.—Henkes describes a form of latent sinusitis affecting the ethmoidal sinus alone, a hyperplastic ethmoiditis which may generate certain reflex neuroses. The only objective sign of it may be that the middle turbinate bone may be somewhat enlarged and the mucosa a little swollen. This periodical hyperemia and swelling exerts a greater irritation on the nerves and tissues than a polyp or other benign process in the nose. A simple operation on the sinus frees the patient at one stroke from his "neurasthenia," "Ménière's disease," "hay-fever," "nervous rhinorrhea" or other complaint of the kind. In one case of Ménière's disease he removed the left middle turbinate as it seemed to be exceptionally large although all around seemed normal. This left exposed a large cell filled with granulation tissue and cells of the ethmoidal sinus were found filled with the same. After these pathologic cells had been removed, the Ménière's disease of many years' standing was cured completely at once. The irritation responsible for it must have proceeded from the otherwise entirely latent pathologic process in this sinus. He introduces far back in each side of the nose an electric light from a cystoscope and the light is turned on in both together. Asymmetrical findings on a line just below the eyebrows call for further investigation. In one case the scanty symptoms pointed to the frontal sinus.

Hospitalstidende, Copenhagen

May 7, 1919, **62**, No. 19

*Roentgen Treatment of Hypertrophied Breasts. C. Rovsing.—p. 577.
*Vaccination against Typhus. O. Thomsen.—p. 588.

Roentgen Treatment of Hypertrophied Breasts.—Rovsing's patient was an unmarried woman of 27, and her breasts had begun to enlarge about eighteen months before. They grew painful and tender with no relief from supports. The skin was normal. A few glands in the axillae were enlarged and tender. Menstruation was normal throughout. An incision in the upper quadrant of one breast showed hard fibrous tissue. Roentgen exposures were then given, twice 6 H. units (3 mm. aluminum), to each breast, and three months later 20 H. (5 mm. aluminum). The right breast subsided to normal size and consistency but the left only partially subsided and there are still pains occasionally and sometimes a milklike secretion. When the mammae become hypertrophied without any connection with puberty or pregnancy, this generally happens in virgins of about 30. The hypertrophy may be up to nine years developing, and spontaneous retrogression has never been observed. The left mamma is the one usually involved or involved most. The hypertrophy of the mamma at puberty has not been known to retrogress spontaneously, but pregnancy hypertrophy develops more rapidly and usually subsides after delivery, but it may return with later pregnancies. With true hypertrophy of the mamma, the histologic findings suggest a pericanalicular fibroadenoma, but the slow growth and the diffuse enlargement differentiate it from cancer. The under side of the mamma may become excoriated and cases of erysipelas, abscesses and gangrene have been published, but no case is known of malignant degeneration. No medical treatment has ever been known to arrest the hypertrophy, not even treatment as for obesity, with loss of 10 per cent. of the weight. After resection of mamma tissue or skin, what is left continues to grow. Fixation of the pendent mamma to ribs or muscles has been tried and failed. The only operation that has proved successful is mammectomy. Roentgen treatment has been applied in two previous cases. In one the left mamma alone had hypertrophied and it subsided somewhat but returned during a pregnancy six years later, and mammectomy was done. The question now is what effect the roentgen treatment will have on lactation thereafter. Nunberg's experimental research demonstrated that the roentgen rays did not apparently modify the normal mammae of virgin animals examined after the animals were killed. By applying roentgen treatment in pregnancy hypertrophy, this question might be decided once for all.

Vaccination Against Typhus.—Thomsen reviews what has been done in this line in England and in Germany, saying that Neukirch seems to have had the best results with a vaccine made by rubbing smooth a blood clot in serum and then shaking with chloroform. He vaccinated 1,700 persons with this vaccine. Others have used a "vaccine" made with infected lice ground in a mortar with saline and injected subcutaneously. Three injections seemed to be complete protection for guinea-pigs, and might prove useful for especially exposed persons.

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*Gastric Secretion in Young Children. A. T. B. Jacobsen.—p. 863.

Gastric Secretion in Young Children.—Jacobsen has been examining the gastric secretion in 25 children from 1 to 4 years old, forty-five minutes after a test meal of 20 gm. zwieback in 175 gm. water. There was no free hydrochloric acid to be found in over 50 per cent. and in all the children the proportion of acid and pepsin was below that of adults. In 2 of the 25 children there was no congo reaction at all. Both congo reaction and the Günzburg were lacking in 5 of 6 children with acute gastro-intestinal disturbance, but as the latter subsided the gastric secretion returned to normal. This occurred likewise in 75 per cent. of the children with subacute and chronic gastro-intestinal disturbances with deficient gastric secretion. The diarrhea in both groups yields usually to a milk diet after preliminary restriction to water for half a day with 5 gm. castor oil.

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*Advice to Medical Writers. J. A. Hammar.—p. 159.
*The Lymphoid Tissue. T. J. Hellman.—p. 217.

Advice to Medical Writers.—Hammar's advice is specifically for the publication of maiden medical efforts, the *förstlingsarbeten*, and he devotes fifty-eight pages to discussion of the choice of the subject and of the title, methods of research, arrangement of the article, style, and where to place the article. The list of comprehensive reference works fills seven pages, from the Index Medicus to the complete list of the thirty-nine Scandinavian medical and dental periodicals.

The Lymphoid Tissue.—This second report on Hellman's research deals with the secondary follicles in the rabbit tonsil. He was unable to confirm Flemming's theory in regard to lymphocyte production here.